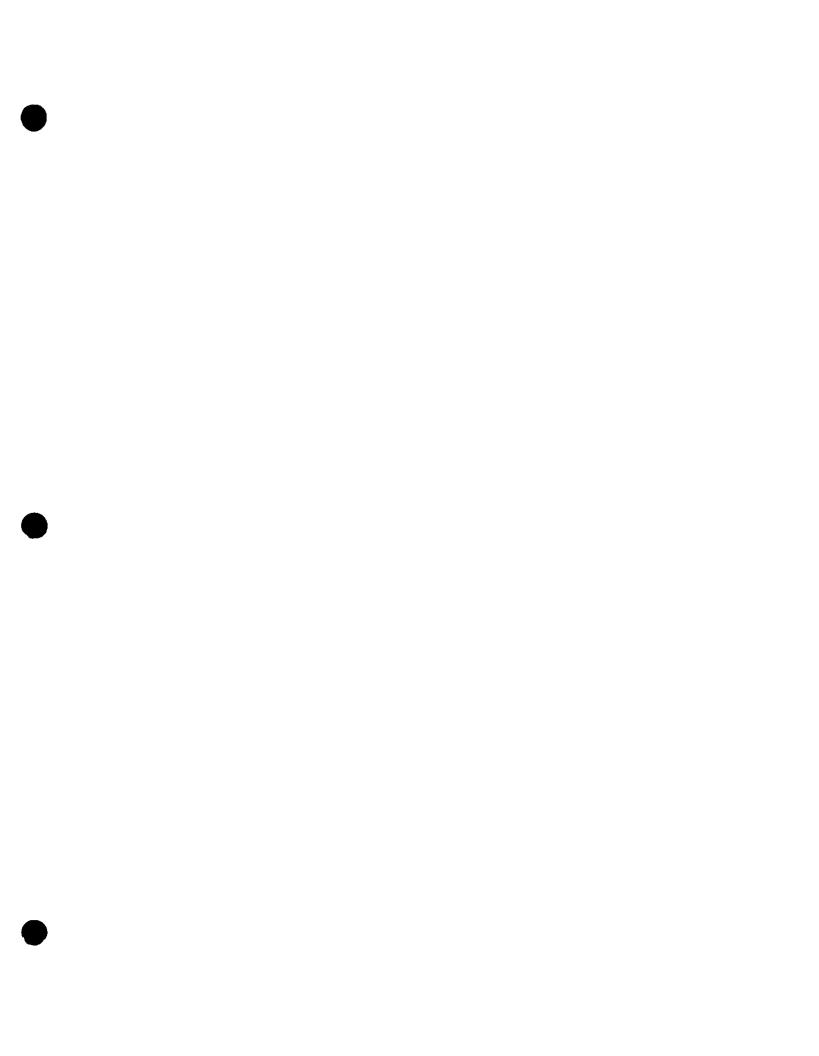
BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF HAWAII

In the Matter of the Application of	
HAWAII ELECTRIC LIGHT COMPANY, INC.	Docket No. 05-0315
For Approval of Rate Increases and Revised Rate Schedules and Rules.	

HELCO VOLUMINOUS RESPONSES TO CONSUMER ADVOCATE INFORMATION REQUESTS

BOOK 12 OF 15

January 12, 2007



CA-IR-211

Please provide copy of any presentations of HEI, HECO, or HELCO given to security analyses and rating agencies for the period 2005 to present.

HELCO Response:

Presentations to Security Analysts

Due to the voluminous nature of the information, HELCO will make the presentations by HEI for the period 2005 to present to security analysts available for review, though the portions of presentations on HEI and its non-utility subsidiaries are generally irrelevant to this proceeding. One copy of the most recent presentation to the investment community (May 10-12, 2006) is attached. Please call Dean Matsuura at 543-4622 to arrange for review of the other presentations made in 2005. The utility subsidiaries do not make separate formal presentations to security analysts.

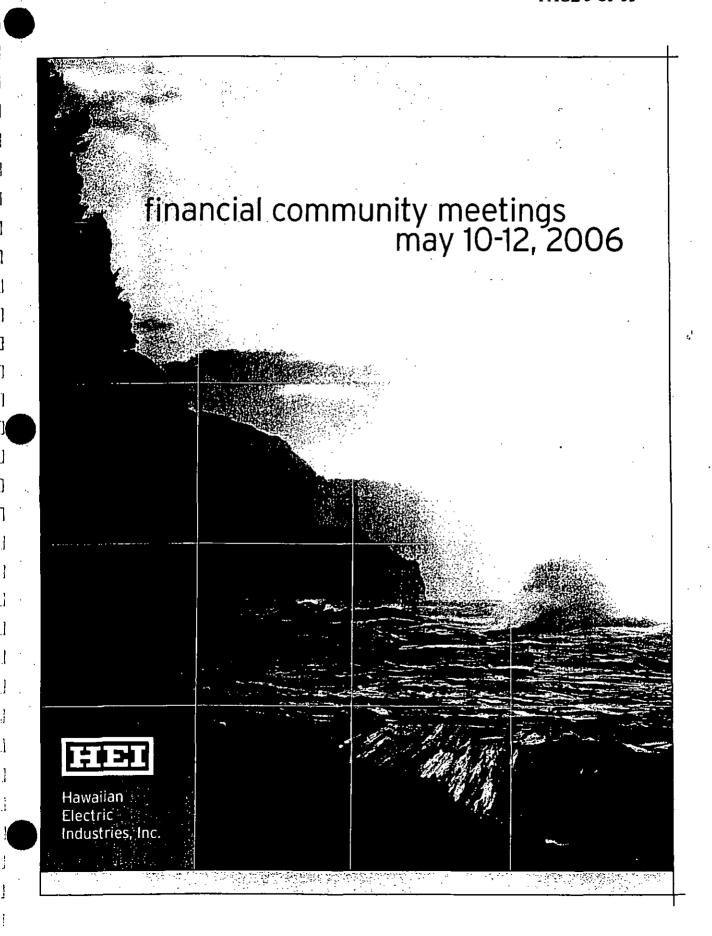
Presentations to Rating Agencies

HELCO objects to providing the presentations by HEI and its subsidiaries to the rating agencies on the grounds that the presentations contain privileged commercial and financial information (including earnings forecast information), which is maintained by HEI, its subsidiaries and the rating agencies as non-public, confidential information, and on the grounds that those portions of the presentations related to HEI and its non-utility subsidiaries are irrelevant to the issues in this proceeding. HELCO is willing to make non-confidential portions of the May 2005 and May 2006 presentation to rating agencies relating to the utilities available for inspection, and to make selected confidential portions of the presentation relating to the utilities available for inspection pursuant to an appropriate protective order. HELCO objects to making available forecast earnings and forecast return information, which disclosure might trigger requirements under

rules and guidelines of the Securities and Exchange Commission and/or the New York Stock

Exchange (see discussion in HELCO's response to CA-IR-207) and customer information due to
privacy concerns, even under protective order.

In addition, information in presentations to rating agencies related to HEI and its non-utility subsidiaries is not relevant to the issues in this docket. While HEI is the parent of HECO, which is HELCO's parent, the Commission generally has ruled that HEI, as a diversified holding company, is not an appropriate proxy for HECO or its utility subsidiaries in determining their cost of capital. (See Decision and Order No. 11317 in Docket No. 6531 (HECO's 1990 Test Year) and Decision and Order No. 10993 in Docket No. 6432 (HELCO's 1990 Test Year).)





Constance H. Lau
President and Chief Executive Officer
Hawailan Electric Industries, Inc.
President and Chief Executive Officer
American Savings Bank, F.S.B.

Ms. Lau, 54, was named president and chief executive officer of Hawaiian Electric industries, inc. in May 2006. She also serves as chairman of Hawaiian Electric Company, inc. and chairman, president and chief executive officer of American Savings Bank. Born and raised in Honolulu, Hawaii, Ms. Lau joined the HEI companies in 1984, serving first as assistant corporate counsel and treasurer of Hawaiian Electric Company, inc. and then as treasurer of HEI. In 1999, she became a director and senior vice president and chief operating officer of American Savings Bank, rising to president and chief executive officer in June 2001. She also served as an HEI director from 2001 through 2004.

Prior to joining the HEI companies, Ms. Lau practiced law in San Francisco, California. She has a bachelor of science degree from Yale College, a juris doctor degree from the University of California Hastings College of the Law and a master's degree in business administration from the Stanford Graduate School of Business. She is currently president of the Hawaii Bankers Association and was ranked by U.S. Banker magazine among the 25 Most Powerful Women in Banking in the U.S. for 2004 and 2005.



T. Michael May President and Chief Executive Officer Hawalian Electric Company, Inc.

Mr. May, 59, was named president and chief executive officer of Hawaiian Electric Company, Inc. and to the HECO board of directors in 1995. Mr. May also served on the HEI board from 1995 through 2004. Born in Newport News, Virginia, Mr. May holds a bachelor's degree in industrial management with further training in industrial engineering from the University of Mississippi and a master's degree in finance from The College of William and Mary.

Prior to joining HECO in 1992 as senior vice president, Mr. May founded Management Assets Group, a management consulting firm specializing in strategic planning. From 1981 to 1989, he served as president and vice president of finance of the independent power production and industrial gas turbine manufacturing subsidiaries of Caterpillar, Inc.

Robert F. Clarke

Chairman, President and Chief Executive Officer Hawalian Electric Industries, Inc. (Retired)

Mr. Clarke, 64, has served as president and chief executive officer of HEI since January 1, 1991, and was named chairman in September 1998. He was born in Oakland, California, and moved to Hawaii in 1973. He received his bachelor's degree in economics in 1965 and master's degree in finance in 1966 from the University of California at Berkeley.

Mr. Clarke joined HEI In February 1987 as vice president of strategic planning and was in charge of implementing the Company's diversification strategy. He was named HEI group vice president-diversified companies in May 1988 and was made a director of HEI in 1989.

Prior to joining HEI, Mr. Clarke served as senior vice president and chief financial officer of Alexander & Baldwin and as controller of Dillingham Corporation, Prior to moving to Hawaii, Mr. Clarke worked for Ford Motor Company and Singer Company.

Mr. Clarke retired on May 2, 2006.



Eric K. Yeaman

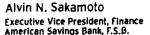
Financial Vice President, Treasurer and Chief Financial Officer Hawaiian Electric Industries, Inc.

Mr. Yeaman, 38, joined HEI as financial vice president, treasurer and chief financial officer in January 2003. Prior to joining HEI, he was the chief operating and financial officer for Kamehameha Schools, one of the nation's largest private trusts.

Prior to that, he was a senior manager with Arthur Andersen LLP in Honolulu. Born and raised in Hawall, Mr. Yeaman earned his bachelor of business administration degree in accounting from the University of Hawaii in 1989 and is a certified public accountant.







Mr. Sakamoto, 52, was named executive vice president, finance of American Savings Bank in May 2004. He joined American Savings Bank in 1986 as an assistant controller and was promoted to vice president, controller in 1987 and became senior vice president, finance in 1997.

Prior to joining American Savings Bank, he was an auditor with KPMG LLP in Honolulu. Born and raised in Honolulu, Hawaii, Mr. Sakamoto earned a bachelor's degree in biology in 1976 and a master's degree in accounting in 1983 from the University of Hawaii and is a certified public accountant.



Tayne S. Y. Sekimura Financial Vice President Hawalian Electric Company, Inc.

Ms. Sekimura, 43, was named financial vice president of Hawailan Electric Company, Inc. in October 2004. Other positions Ms. Sekimura has held since joining HECO in 1991 include director, corporate and property accounting; director, internal audit; and capital budgets administrator. Prior to joining HECO, she was an audit manager at KPMG LLP in Honolulu.

Ms. Sekimura was born and raised in Hawaii and earned her bachelor of business administration degree in accounting from the University of Hawaii in 1984. Ms. Sekimura Is a certified public accountant.



Manager, Treasury and Investor Relations

Hawalian Electric Industries, inc.

Ms. Hollinger, 40, was named manager, treasury and investor relations of HEI in July 2004. She joined HEI as manager, investor relations in December 2000.

Prior to joining HEI, Ms. Hollinger was an audit senior manager with KPMG LLP in Honolulu. She earned her bachelor's degree in economics from Claremont McKenna College in 1987 and is a certified public accountant.



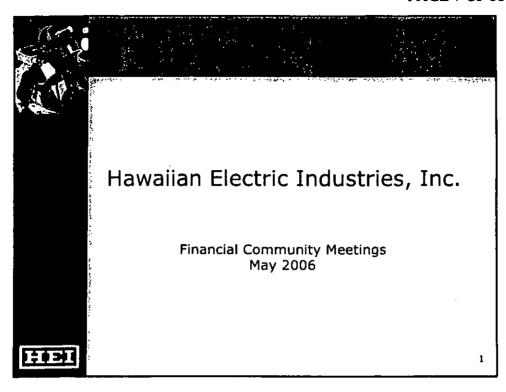
Forward-Looking Statements

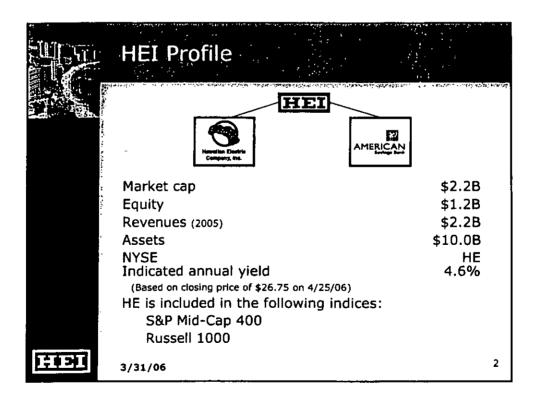
This report and other presentations made by Hawaiian Electric Industries, Inc. (HEI) and Hawaiian Electric Company, Inc. (HECO) and their subsidiaries contain "forward-looking statements," which include statements that are predictive in nature, depend upon or refer to future events or conditions, and usually include words such as "expects," "anticipates," "intends," "plans," "believes," "predicts," "estimates" or similar expressions. In addition, any statements concerning future financial performance, ongoing business strategies or prospects and possible future actions are also forward-looking statements. Forward-looking statements are based on current expectations and projections about future events and are subject to risks, uncertainties and the accuracy of assumptions concerning HEI and its subsidiaries (collectively, the Company), the performance of the industries in which they do business and economic and market factors, among other things. These forward-looking statements are not guarantees of future performance.

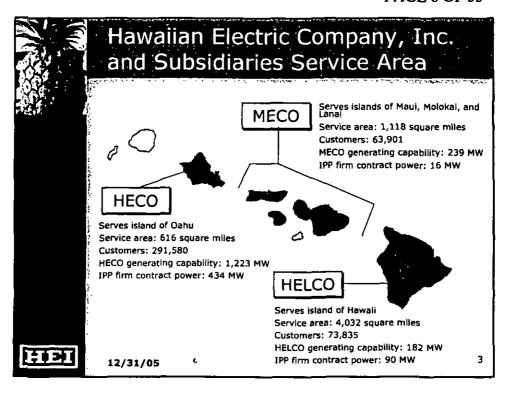
Risks, uncertainties and other important factors that could cause actual results to differ materially from those in forward-looking statements and from historical results include, but are not limited to, the following:

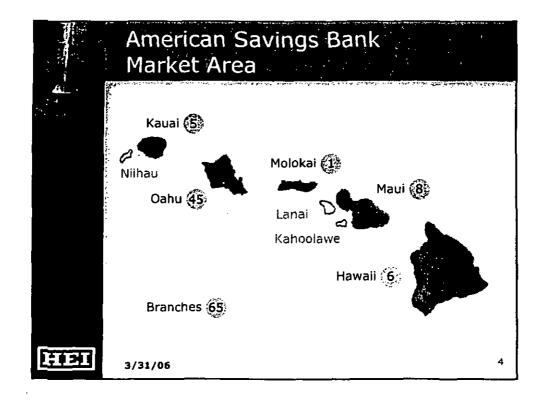
- the effects of international, national and local economic conditions, including the state of the Hawaii tourist and construction industries,
 the strength or weakness of the Hawaii and continental U.S. real estate markets (including the fair value of collateral underlying loans and mortgage-related securities) and decisions concerning the extent of the presence of the federal government and military in Hawaii;
- the effects of weather and natural disasters;
- global developments, including the effects of terrorist acts, the war on terrorism, continuing U.S. presence in Iraq and Afghanistan, potential conflict or crists with North Korea, relations with Iran and Iran's nuclear activities;
- the timing and extent of changes in interest rates;
- . the risks inherent in changes in the value of and market for securities available for sale and pension and other retirement plan assets;
- · changes in assumptions used to calculate retirement benefits costs and changes in funding requirements;
- · demand for services and market acceptance risks;
- increasing competition in the electric utility and banking industries (e.g., increased self-generation of electricity may have an adverse impact on HECO's revenues and increased price competition for deposits, or an outflow of deposits to atternative investments, may have an adverse impact on American Savings Bank, F.S.B.'s (ASB's) cost of funds);
- capacity and supply constraints or difficulties, especially if generating units (utility-owned or independent power producer (IPP)-owned) fall
 or measures such as demand-side management, distributed generation, combined heat and power or other firm capacity supply-side
 resources fall short of achieving their forecasted benefits or are otherwise insufficient to reduce or meet peak demand;
- increased risk to generation reliability as generation reserve margins on Oahu are lower than considered desirable;
- fuel oil price changes, performance by suppliers of their fuel oil delivery obligations and the continued availability to the electric utilities of their energy cost adjustment clauses;
- the ability of IPPs to deliver the firm capacity anticipated in their power purchase agreements;
- . the ability of the electric utilities to negotiate, periodically, favorable fuel supply and collective bargaining agreements;
- new technological developments that could affect the operations and prospects of HEI and its subsidiaries (including HECO and its subsidiaries and ASB and its subsidiaries) or their competitors;
- federal, state and international governmental and regulatory actions, such as changes in laws, rules and regulations applicable to HEI,
 HECO and their subsidiaries (including changes in taxation, environmental laws and regulations and governmental fees and
 assessments); decisions by the Public Utilities Commission of the State of Hawaii in rate cases and other proceedings and by other
 agencies and courts on land use, environmental and other permitting issues; required corrective actions, restrictions and penalties (that
 may arise with respect to environmental conditions, capital adequacy and business practices);
- . increasing operations and maintenance expenses for the electric utilities and the possibility of more frequent rate cases;
- · the risks associated with the geographic concentration of HEI's businesses;
- the effects of changes in accounting principles applicable to HEI, HECO and their subsidiaries, including continued regulatory accounting
 under Statement of Financial Accounting Standards No. 71 (Accounting for the Effects of Certain Types of Regulation), the possible
 effects of applying Financial Accounting Standards Board Interpretation No. 46R (Consolidation of Variable Interest Entities) and
 Emerging Issues Task Force Issue No. 01-8 (Determining Whether an Arrangement Contains a Lease) to power purchase arrangements
 with independent power producers, and the possible effects of potential changes in the accounting for retirement benefits;
- the effects of changes by securities rating agencies in their ratings of the securities of HEI and HECO and the results of financing efforts;
- faster than expected loan prepayments that can cause an acceleration of the amortization of premiums on loans and investments and the impairment of mortgage servicing rights of ASB;
- changes in ASB's loan portfolio credit profile and asset quality which may increase or decrease the required level of allowance for loan losses;
- the final outcome of tax positions taken by HEI, HECO and their subsidiaries;
- the ability of consolidated HEI to generate capital gains and utilize capital loss carryforwards on future tax returns;
- · the risks of suffering losses and incurring liabilities that are uninsured; and
- other risks or uncertainties described elsewhere in this report and in other periodic reports (e.g., "Item 1A. Risk Factors" in the Company's Annual Report on Form 10-K) previously and subsequently filed by HEI and/or HECO with the Securities and Exchange Commission

Forward-looking statements speak only as of the date of the report, presentation or filing in which they are made. Except to the extent required by the federal securities laws, HEI and its subsidiaries undertake no obligation to publicly update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.











Hawaii Economy

- Four major components
 - Federal government, including military
 - Tourism
 - Construction
 - Real estate
- Growing at a sustainable pace

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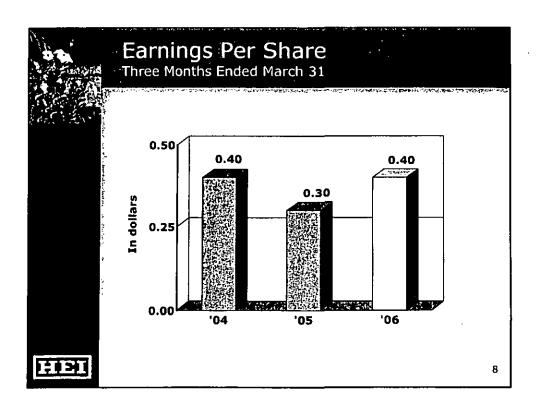
	Hawaii Economic S				The second of the second
To large the	Percent change	2005	20061	20071	2008¹
Was Thrown	Real GSP	3.81	3.0	2.6	2.3
* New York	CPI inflation – Honolulu	3.8	3.5	3.3	2.8
1 2	Visitor days	6.6 ²	3.1	2.4	2.4
	Visitor expenditures	8.72	4.6	5.2	5.0
ŕ	Job growth	2.8	1.8	1.3	1.2
±*	Unemployment (at Dec 31)	2.7	2.6^{3}	NA	NA
	Real personal income	3.9 ¹	3.2	2.8	2.6
	Total population	1.0	1.1	1.1	1.1
सम्ब	¹ Forecast ² Preliminary ³ Actual for March 2005 NA Not available Source: DBEOT Quarterly Statistical & Economic Repo	rt, 2/22/06	.		6



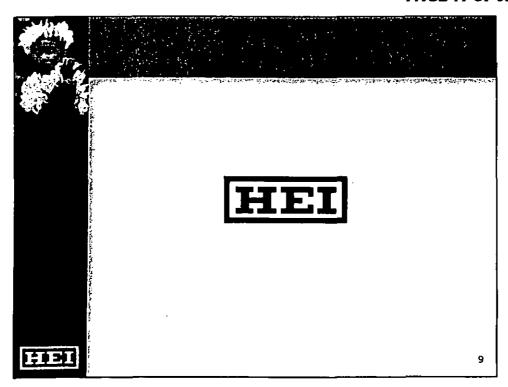
Economic Growth Impacts Our Businesses

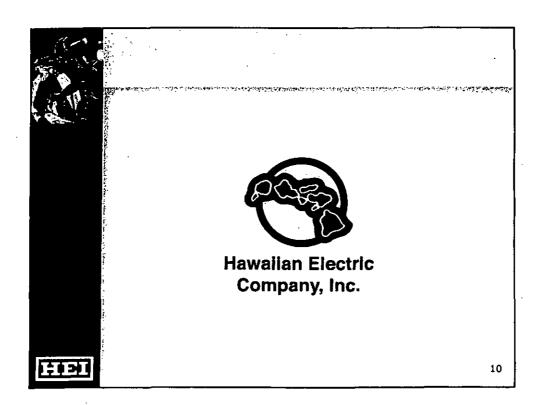
- Utility
 - · Increased kilowatthour sales
 - Growth putting pressure on systems, requiring higher O&M and investment in new generation
 - · Increased need for rate relief
- Bank
 - Strong economy driving organic loan and deposit growth
 - Margins impacted from flat/inverted yield curve
 - Excellent asset quality resulting from healthy real estate values and low unemployment

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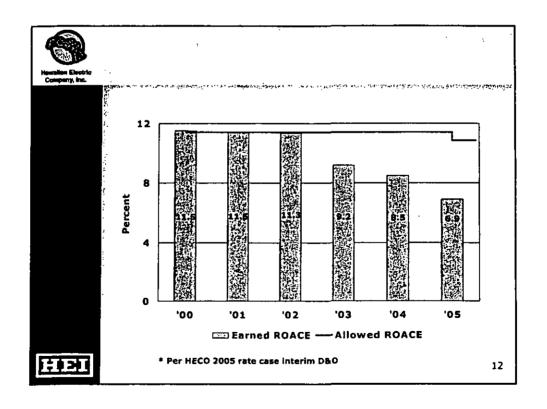


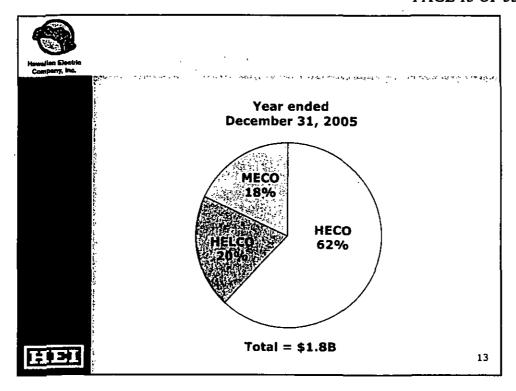


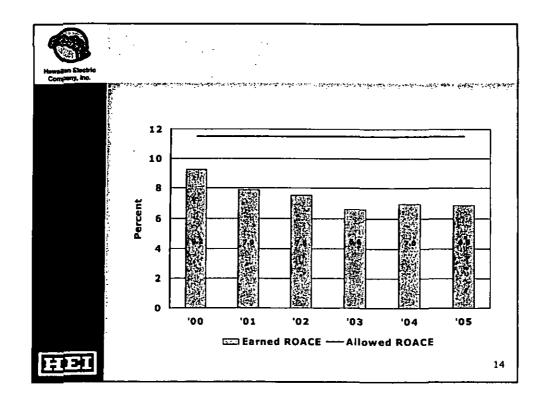


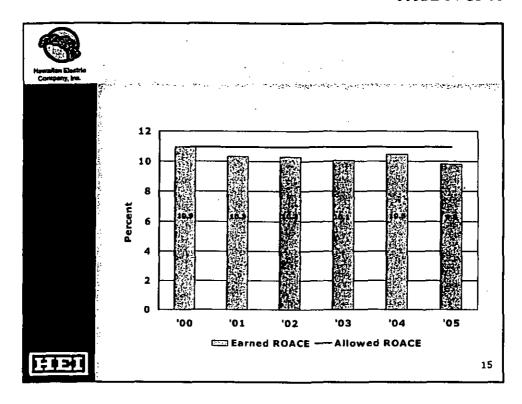
- Plan to improve rates of return
- Rate cases in progress
- Strategic focus emphasizes diverse energy plan
- Entering an expansion cycle
- Strong balance sheet

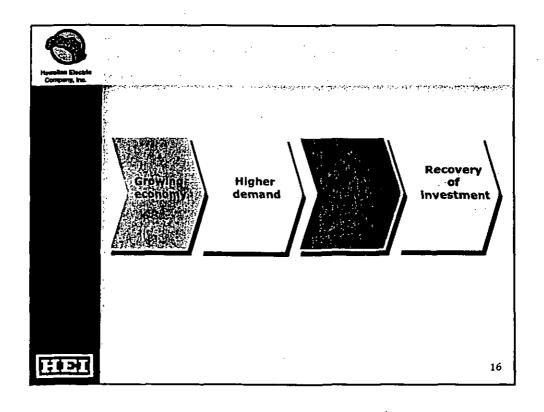
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- Interim decision received Sep '05
 - \$41M* (3.3%) interim increase
 - 10.7% return on common equity
 - 8.66% return on rate base
 - \$1,109M average rate base
- Revised request (after settlement)
 - \$42M* (3.4%) increase

* Additional base revenues net of \$12M already collected via a surch

17



- Final D&O is pending
- · No statutory deadline
- Possible decision in June 2006
- Higher O&M than test year
- Swift interim decision

15031



- Energy Efficiency Docket
 - Bifurcated out of original Oahu rate case
 - Hearings scheduled for August 2006

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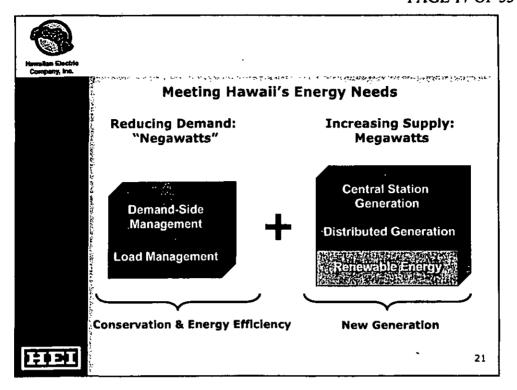


- 2006 test year
- See handout for details
- Interim decision expected next spring

Other regulatory matter:

New PUC commissioner nominated

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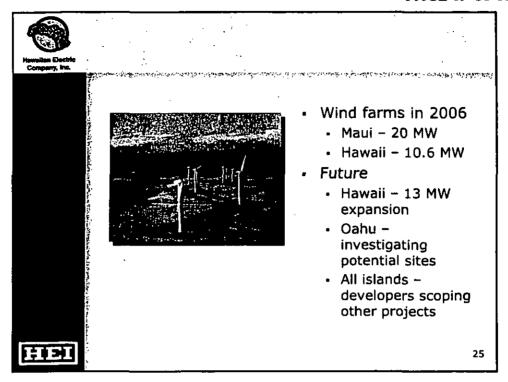
- More moderate growth than Hawaii economic growth
 - · Less humid weather
 - · Fuel prices in electric bills
 - Conservation
- Forecast under review

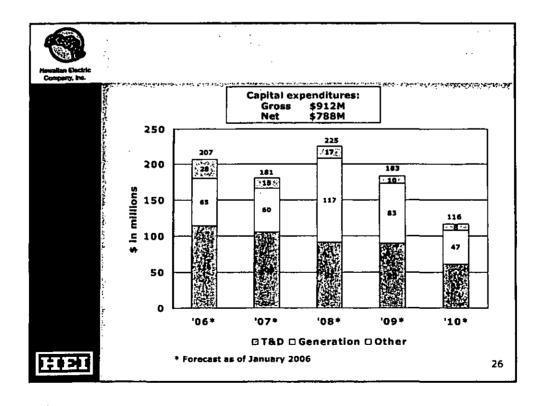
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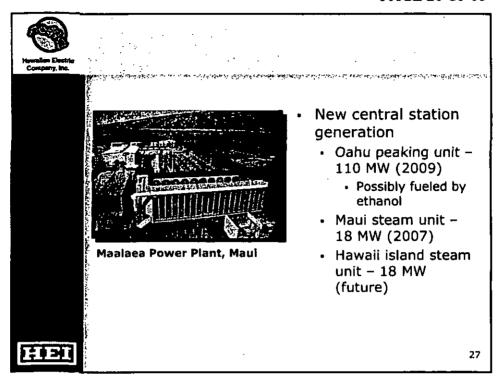
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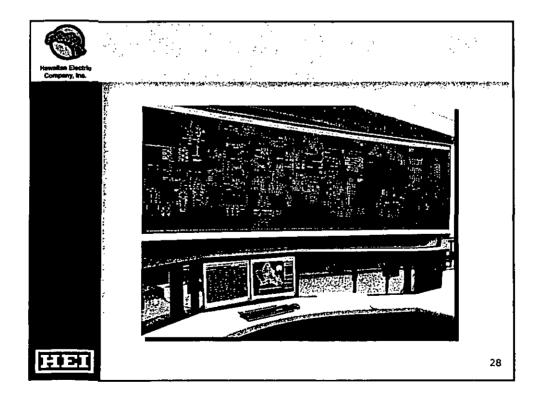


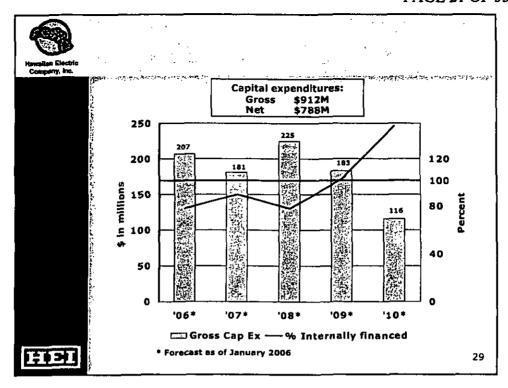
- Enough generation to meet customer needs; lower reserves
- Units running harder and longer to maintain reserve margins
- Higher O&M costs
- 2009 Oahu generating unit should help
- · Distributed generation
- Improving efficiencies
- Energy conservation and efficiency

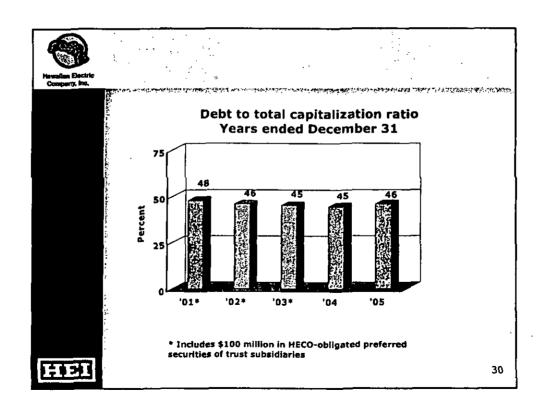


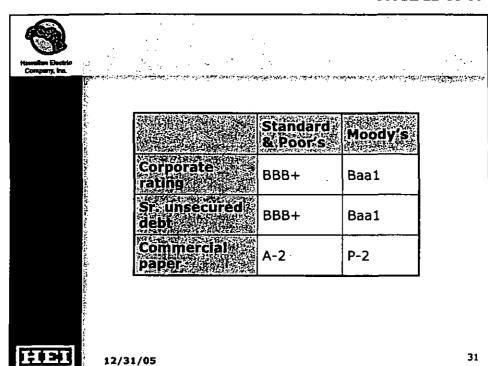


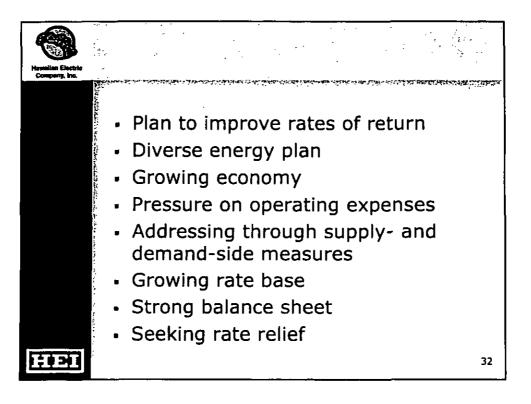




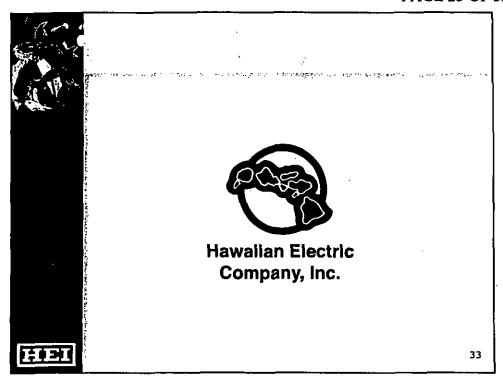


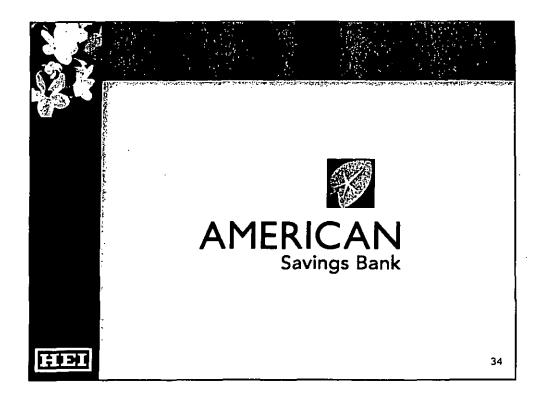






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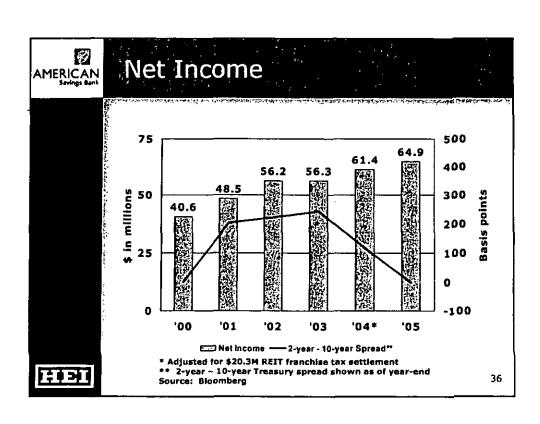


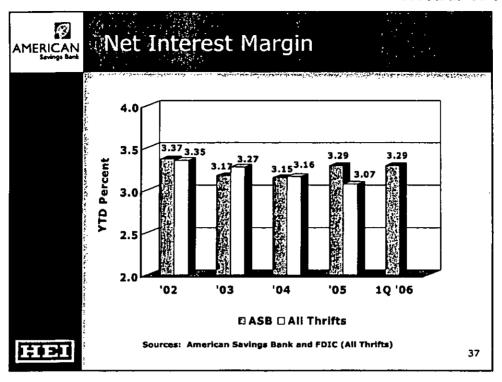


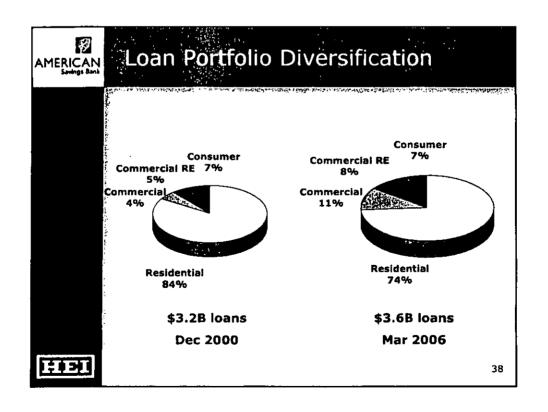
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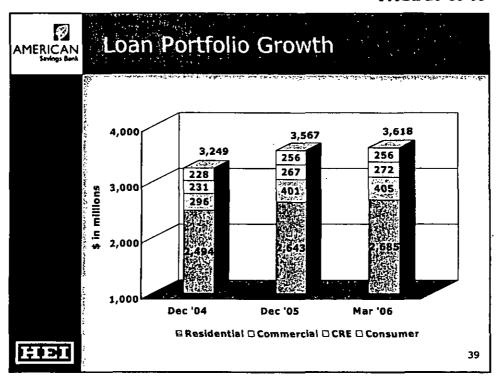
Investment Highlights Demonstrated strong financial performance through difficult part of interest rate cycle Successfully executing strategic plan to transform from thrift to community bank Growth and diversification of loan portfolio Growth of low-cost deposits Excellent asset quality

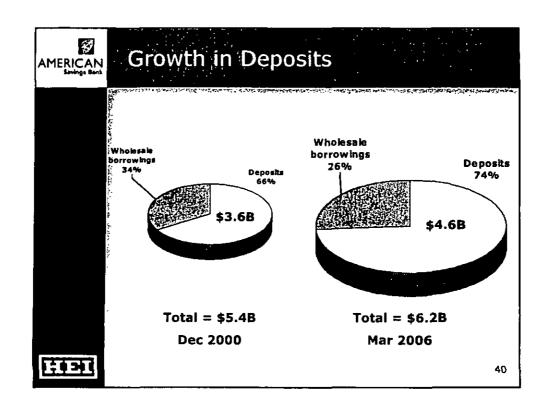
Quality and consistency of earnings

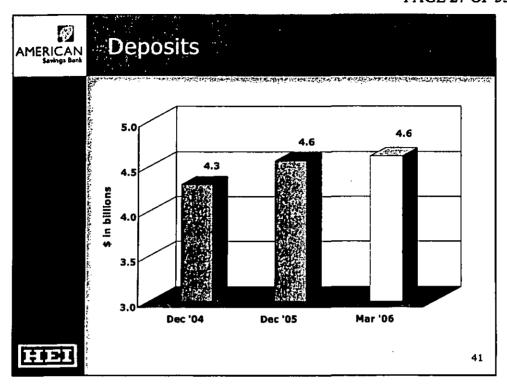




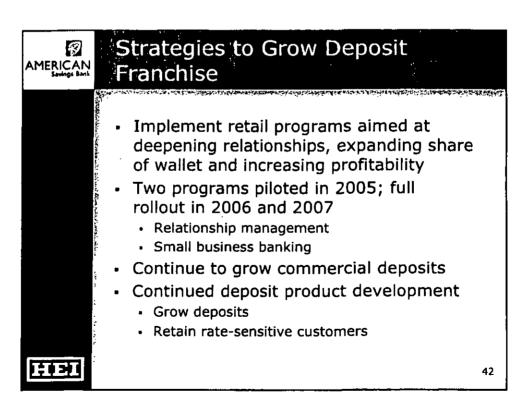


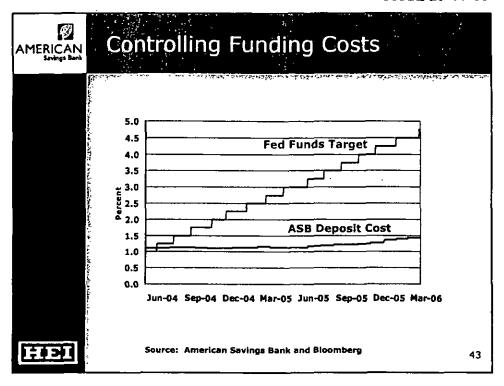


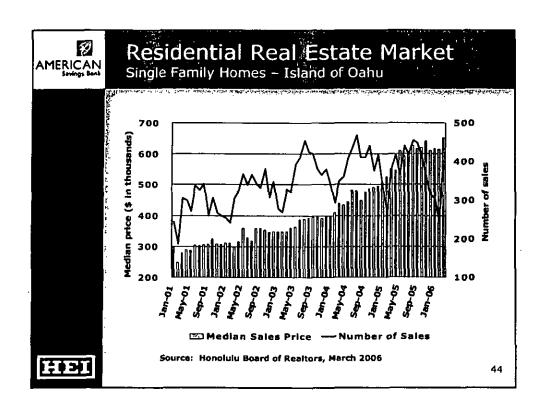


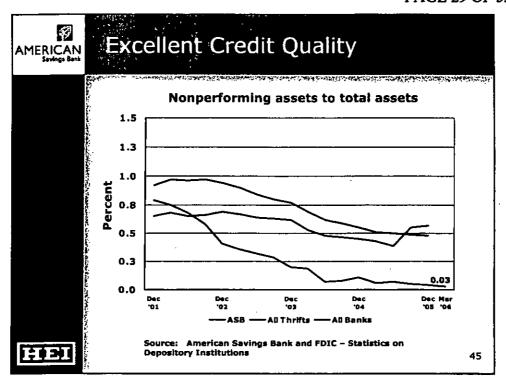


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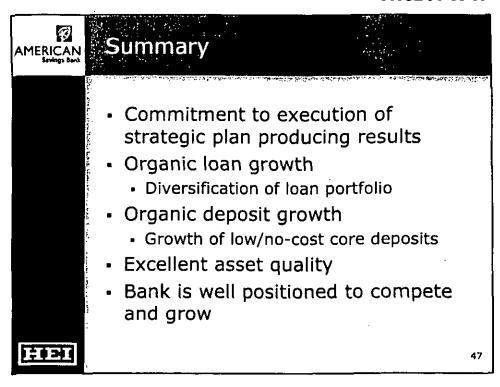


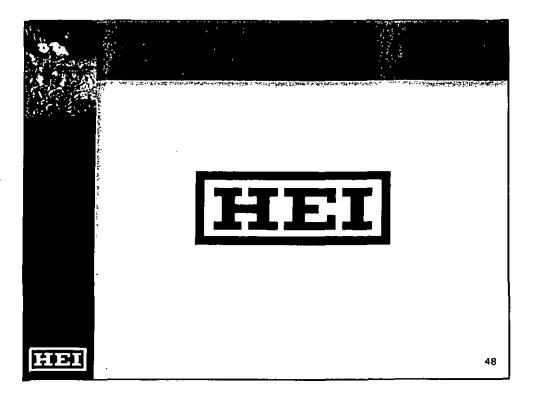






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Si ann deicheid	ROA	.77	.90	1.00	.96	1.01	.95	.99
iden Pilandela 1892 merikala gerbande liigiga (ROE	10.4	11.5	11.9	11.5	12.3	11.7	12.1
Shaff forces	Core: Capital	6.1	6.6	6.7	7.0	7.1	7.4	7.5



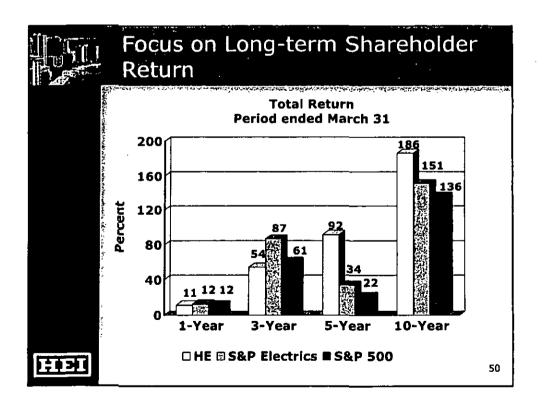




Committed to the Dividend

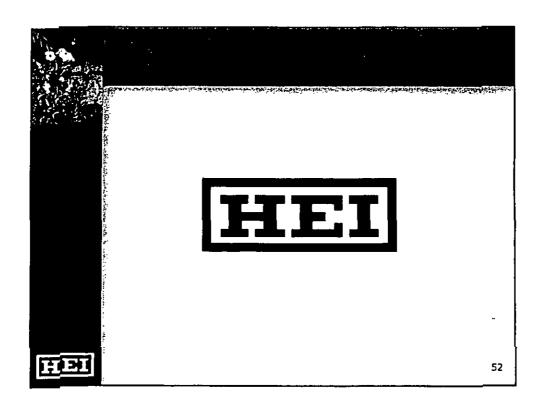
- Improving utility returns and organic growth at the bank is expected to support the dividend
- Maintain dividend
- Paid dividends for over 100 years
- Attractive 4.6% yield

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Key Investment Points

- Management is focused on increasing long-term shareholder value by:
 - · Maintaining a healthy dividend
 - Operating our core businesses for growth to support the dividend and total returns
- Traditional, vertically integrated utilities that are growing to support increased demand and modernization of their systems
- Bank executing a strategic plan that is improving the quality and consistency of earnings growth



hawaiian electric industries, inc. appendices

Consolidated Financial Statements

Hawaiian Electric Industries, Inc.	A1
Hawaiian Electric Company, Inc.	A6
American Savings Bank, F.S.B	A11
Rate Case Summaries	
Hawaii Public Utilities Commissioner Biographies	A16
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2005 Oahu Rate Case	A17
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Hawaii Electric Light Company, Inc.	
2000 Big Island Test Year Rate Case	A19
Maui Electric Company, Limited	
1999 Maui Rate Case	A20

Hawaiian Electric Industries, Inc. and Subsidiaries Unaudited					•		
Onaudited	March 31,	-		December 31,			
(in thousands)	2006	2005	2004	2003	2002	2001	
ASSETS	•					•	
Cash and equivalents	\$ 155,382	\$ 151,513	\$ 132,138	\$ 223,310	\$ 244,525	\$ 450,827	
Federal funds sold	85,232	57,434	41,491	56,678	•		
Accounts receivable and unbilled revenues, net	228,771	249,473	208,533	187,716	176,327	164,124	
Available-for-sale investment and mortgage-related securities	2,609,160	2,629,351	2,953,372	2,728,748	2,744,650	2,370,459	
Investment in stock of Federal Home Loan Bank of Seattle	97,764	97,764	97,365	94,624	89,545	84,211	
Loans receivable, net	3,618,246	3.566.834	3,249,191	3,121,979	2.993.989	2,857,622	
Property, plant and equipment, net	2,558,800	2,542,776	2,422,303	2,311,888	2,241,943	2,212,977	
Regulatory assets	111,438	110,718	108,630	106,542	105,568	111,376	
Other	425.892	456.134	414,971	382,228	345,002	309.867	
Goodwill and other intangibles	89,023	89,580	91,263	93,987	97,572	101,954	
	\$ 9,979,708	\$ 9,951,577	\$ 9,719,257	\$ 9,307,700	\$ 9,039,121	\$ 8,663,417	
	=						
LIABILITIES AND STOCKHOLDERS' EQUITY							
Liabilities							
Accounts payable	\$ 183,852	\$ 183,336	\$ 153,943	\$ 132,780	\$ 134,416	\$ 119,850	
Deposit liabilities	4,610,399	4,557,419	4,296,172	4,026,250	3,800,772	3,679,586	
Short-term borrowings	182,584	141,758	76,611	4,020,200	0,000,172	3,013,000	
Other borrowings	1,623,287	1,622,294	1,799,669	1,848,388	1,843,499	1,715,932	
Long-term debt, net	1,133,041	1,142,993	1,166,735	1,064,420	1,106,270	1,145,769	
Deferred income taxes	195,874	207.997	229,765	226,590	235,431	185,436	
Regulatory liabilities	224,598	219,204	197,089	178,424	162,618	145,474	
Contributions in aid of construction	260,692	256,263	235,505	233,969	218,094	213,557	
Other	319,566	369,390	318,418	273,442	257,315	293,742	
	8,733,893	8,700,654	8,473,907	7,984,263	7,758,415	7,499,346	
Minority Interests	37. 55,555	0,100,001	0, 110,001	. 100 11200	1,1100,110	1,700,070	
HEI- and HECO-obligated preferred securities			•				
of trust subsidiaries	_	-	_	200,000	200.000	200.000	
Preferred stock of subsidiaries-						200,000	
not subject to mandatory redemption	34,293	34,293	34,405	34,406	34,406	34,406	
	34,293	34,293	34,405	234,406	234,406	234,406	
Stockholders' equity	• •	2 -,200	<u> </u>			20.,400	
Preferred stock	_	-	-	_	-	<u>-</u>	
Common stock	1.020.161	1,018,966	1,010,090	888,431	839,503	787,374	
Retained earnings	242,605	235,394	208,998	197,774	: 176,118	147,837	
Accumulated other comprehensive income (loss),		200,004		3.,		, , , , , , , , , , , , , , , , , ,	
net of taxes	(51,244)	(37,730)	(8,143)	2,826	30,679	(5,546	
Hot of taxo	1,211,522	1,216,630	1,210,945	1,089,031	1,046,300	929,665	
	\$ 9,979,708	\$ 9,951,577	\$9,719,257	\$ 9,307,700	\$ 9,039,121	\$8,663,417	

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Consolidated Statements of Income

PAGE 35 OF	DOCKET NO	CA-IR-211
2 2 3	NO. 05-03	_
	31:5	

Page	Hawaiian Electric Industries, Inc. and Subsidiaries Unaudited								•		
	•	200	E		2004		2003		2002		2001
Selectric utility		200	<u> </u>		2004		2003		2002		2001
Stank Stan											
Sank 18							200 005	•	4 057 470	• 4	200 204
Other 21,270 9,102 13,311 (2,730) (6,628) Expenses Electric utility 1,644,681 1,376,768 1,220,120 1,062,220 1,953,593 Bank 283,009 259,310 278,565 306,372 362,503 Other 16,452 17,019 19,064 18,676 13,242 Operating Income (loss) 161,703 173,903 175,749 1,387,268 1,471,104 Operating Income (loss) 161,703 173,903 176,565 194,956 193,945 Bank 104,901 104,974 92,755 92,883 82,099 Other 4,818 (7,917) (5,753) (21,406) (19,871 Interest expense-other than bank (75,309) (77,176) (69,292) (72,292) (78,726 Allowance for borrowed funds used during construction 2,020 2,542 1,914 1,855 2,258 Preferred securities distributions of trust subsidiaries 5,105 5,794 4,267 3,954 4,239 <t< td=""><td>•</td><td>-</td><td>-</td><td>\$ 1</td><td></td><td>\$ 7</td><td></td><td>2</td><td></td><td>3 1</td><td></td></t<>	•	-	-	\$ 1		\$ 7		2		3 1	
Expenses					•						
Electric utility Bank 283,009 2859,310 278,565 306,372 362,503 Other 16,452 17,019 19,064 13,676 1944,142 1,653,097 1,517,749 1,387,268 1,471,104 Operating Income (loss) Electric utility 161,703 173,903 176,565 194,956 193,945 Bank 104,901 104,974 92,755 92,883 82,099 Other 4,818 7,917 (5,753) Other 4,818 7,917 (5,753) Other 4,818 7,917 (5,753) Other 4,818 (7,917) (5,753) Other 4,918 (7,917) (6,929) (7,176) (6,929) (7,229) (7,229) (7,229) (7,226)	Other							_	(2,730) 1 652 701		
Electric utility 1,644,681 1,376,768 1,220,120 1,062,220 1,095,359 1,064	Evnance	2,215	,504	- 7	1,924,057		1,101,310	-	1,055,701		,121,211
Bank Other									4 000 000		205 250
Other 16,452 17,019 19,064 18,676 13,242 Operating Income (loss) 1,944,142 1,653,097 1,517,749 1,387,268 1,471,104 Electric utility 161,703 173,903 176,565 194,956 193,945 Bank 104,901 104,974 92,755 92,883 82,099 Other 4,818 (7,917) (5,753) (21,406) (19,871 Interest expense—other than bank (75,309) (77,176) (69,292) (72,292) (78,726 Allowance for borrowed funds used during construction 2,020 2,542 1,914 1,855 2,258 Preferred stock dividends of subsidiaries (1,894) (1,901) (2,006) <	· · · · · · · · · · · · · · · · · · ·			•						7	
1,944,142			•								
Departing Income (loss) Electric utility 161,703 173,903 176,565 194,956 193,945 194,956 193,945 194,956 193,945 194,956 193,945 194,956 193,945 194,956 193,945 194,956	Other										
Electric utility		1,944	,142		1,653,097		1,517,749		<u>1,387,268</u>	1	<u>,471,104</u>
Bank Other 104,901 4,818 104,974 (7,917) 92,755 (5,753) 92,883 (21,909) 82,099 (19,871) Interest expenseother than bank Interest expenseother than bank Allowance for borrowed funds used during construction Interest expenseother than bank Interest expense Interest											
Other 4,818 (7,917) (5,753) (21,406) (19,871) Interest expenseother than bank 271,422 270,960 263,567 266,433 256,173 Allowance for borrowed funds used during construction 2,020 2,542 1,914 1,855 2,258 Preferred stock dividends of subsidiaries (1,894) (1,901) (2,006) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,035) (16,0					•						
271,422 270,960 263,567 266,433 256,173 Interest expenseother than bank (75,309) (77,176) (69,292) (72,292) (78,726 Allowance for borrowed funds used during construction 2,020 2,542 1,914 1,855 2,258 Preferred stock dividends of subsidiaries (1,894) (1,901) (2,006) (2,006) (2,006 Preferred securities distributions of trust subsidiaries (16,035) (16,035) (16,035) Allowance for equity funds used during construction 5,105 5,794 4,267 3,954 4,239 Income from continuing operations before income taxes 201,344 200,219 182,415 181,909 165,903 Income from continuing operations 127,444 107,739 118,048 118,217 107,746 Income (loss) from discontinued operations, net of income taxes 73,900 92,480 64,367 63,692 58,157 Net income (loss) per common share 126,689 109,652 114,178 118,217 83,705 Basic earnings (loss) per common share 1.58 1.36 1.58 1.63 1.60 Discontinued operations 1.57 1.38 1.53 1.63 1.60 Discontinued operations 1.57 1.38 1.53 1.63 1.24 Diluted earnings per common share 1.56 1.38 1.52 1.62 1.24 Weighted-average number of common shares cutstanding 80,828 79,562 74,696 72,556 67,508											
Interest expense—other than bank (75,309) (77,176) (69,292) (72,292) (78,726 Allowance for borrowed funds used during construction 2,020 2,542 1,914 1,855 2,258 Preferred stock dividends of subsidiaries (1,894) (1,901) (2,006) (2,006) (2,006 (2,006) (2,0	Other										
Allowance for borrowed funds used during construction Preferred stock dividends of subsidiarles (1,894) (1,901) (2,006) (2,006) (2,006) Preferred securities distributions of trust subsidiarles (1,894) (1,901) (2,006) (2,006) (2,006) (2,006) Preferred securities distributions of trust subsidiarles (16,035) (16,035) (16,035) (16,035) Preferred securities distributions of trust subsidiarles (16,035) (16,035) (16,035) (16,035) Preferred securities distributions of trust subsidiarles (16,035) (16,0		271	,422				263,567		266,433	•	
Preferred stock dividends of subsidiaries Preferred securities distributions of trust subsidiaries Allowance for equity funds used during construction Allowance for equity funds used during construction Allowance from continuing operations before income taxes Allowance from continuing operations Allowance from continuing operations before income taxes Allowance from continuing operations Allowance for equity funds used during construction Allowance for equity funds used allowance for except and allowance for except	Interest expenseother than bank	(75	(908,						(72,292)	_	
Preferred securities distributions of trust subsidiaries Allowance for equity funds used during construction Allowance for equity funds used during construction Income from continuing operations before income taxes Income from continuing operations Income from continuing operations Income from continuing operations Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations Income (loss) from discontinued operations Income (loss) from discontinued operations, net of income taxes Income (loss) from discontinued operations Income (loss) from discontinued operations Income (loss) from discontinued operations Income taxes Income (loss) from discontinued operations Income taxes Income taxes Income (loss) from discontinued operations Income taxes Income taxes Income (loss) from discontinued operations Income taxes Income taxes Income (loss) from discontinued operations Income taxes		2	2,020		2,542		1,914		1,855		
Allowance for equity funds used during construction 5,105 5,794 4,267 3,954 4,239 Income from continuing operations before income taxes 201,344 200,219 182,415 181,909 165,903 Income from continuing operations 127,444 107,739 118,048 118,217 107,746 Income (loss) from discontinued operations, net of income taxes (755) 1,913 (3,870) - (24,041 Net income 126,689 109,652 114,178 118,217 83,705 Basic earnings (loss) per common share 21,58 1,36 1,58 1,63 1,60 Discontinued operations 1,58 1,38 1,53 1,63 1,24 Diluted earnings per common share 1,56 1,38 1,53 1,63 1,24 Diluted earnings per common share 1,24 1,24 1,24 1,24 1,24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508		(1	,894)		(1,901)		(2,006)		(2,006)		(2,006)
Income from continuing operations before income taxes 201,344 200,219 182,415 181,909 165,903 165,003	Preferred securities distributions of trust subsidiaries		•		•		(16,035)		(16,035)		(16,035)
Income taxes 73,900 92,480 64,367 63,692 58,157 Income from continuing operations 127,444 107,739 118,048 118,217 107,746 Income (loss) from discontinued operations, net of income taxes (755) 1,913 (3,870) - (24,041	Allowance for equity funds used during construction		,105						3,954		4,239
127,444	Income from continuing operations before income taxes	201	,344		200,219		182,415		181,909		165,903
Net income (loss) from discontinued operations, net of income taxes (755) 1,913 (3,870) - (24,041)	Income taxes	73	,900		92,480		64,367		63,692		58,157
Net income \$ 126,689 \$ 109,652 \$ 114,178 \$ 118,217 \$ 83,705 Basic earnings (loss) per common share Continuing operations \$ 1.58 \$ 1.36 \$ 1.58 \$ 1.63 \$ 1.60 Discontinued operations (0.01) 0.02 (0.05) - (0.36 \$ 1.57 \$ 1.38 \$ 1.53 \$ 1.63 \$ 1.24 Diluted earnings per common share \$ 1.56 \$ 1.38 \$ 1.52 \$ 1.62 \$ 1.23 Dividends per common share \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508	Income from continuing operations	127	,444		107,739		118,048		118,217		107,746
Net income \$ 126,689 \$ 109,652 \$ 114,178 \$ 118,217 \$ 83,705 Basic earnings (loss) per common share Continuing operations \$ 1.58 \$ 1.36 \$ 1.58 \$ 1.63 \$ 1.60 Discontinued operations (0.01) 0.02 (0.05) - (0.36 \$ 1.57 \$ 1.38 \$ 1.53 \$ 1.63 \$ 1.24 Diluted earnings per common share \$ 1.56 \$ 1.38 \$ 1.52 \$ 1.62 \$ 1.23 Dividends per common share \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508	Income (loss) from discontinued operations, net of income taxes		(755)	•	1,913	•	(3,870)		-		(24,041)
Basic earnings (loss) per common share \$ 1.58 \$ 1.36 \$ 1.58 \$ 1.63 \$ 1.60 Continuing operations \$ 1.58 \$ 1.36 \$ 1.58 \$ 1.60 \$ 1.60 Discontinued operations (0.01) 0.02 (0.05) - (0.36 \$ 1.57 \$ 1.38 \$ 1.53 \$ 1.63 \$ 1.24 Diluted earnings per common share \$ 1.56 \$ 1.38 \$ 1.52 \$ 1.62 \$ 1.23 Dividends per common share \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508	Net income	\$ 126	,689	\$		\$	114,178	\$	118,217	\$	83,705
Continuing operations \$ 1.58 \$ 1.36 \$ 1.58 \$ 1.60 \$ 1.60 \$ 1.60 \$ 1.60 \$ 1.60 \$ 1.60 \$ 1.60 \$ 1.50 \$ 1.60 \$ 1.50 \$ 1.38 \$ 1.53 \$ 1.63 \$ 1.24 \$ 1.	Basic earnings (loss) per common share										-
Discontinued operations (0.01) 0.02 (0.05) - (0.36) \$ 1.57 \$ 1.38 \$ 1.53 \$ 1.63 \$ 1.24 Diluted earnings per common share \$ 1.56 \$ 1.38 \$ 1.52 \$ 1.62 \$ 1.23 Dividends per common share \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508		\$	1.58	\$	1.36	\$	1.58	\$	1.63	\$	1.60
\$ 1.57 \$ 1.38 \$ 1.53 \$ 1.63 \$ 1.24 Diluted earnings per common share \$ 1.56 \$ 1.38 \$ 1.52 \$ 1.62 \$ 1.23 Dividends per common share \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508				-		•		-	•	•	(0.36)
Diluted earnings per common share \$ 1.56 \$ 1.38 \$ 1.52 \$ 1.62 \$ 1.23 Dividends per common share \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 \$ 1.24 Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508					1.38	\$	1.53	\$	1.63	\$	1.24
Dividends per common share \$ 1.24 \$ 1.2	Diluted earnings per common share	\$	1.56	\$		\$	1.52	\$	1.62	\$	1.23
Weighted-average number of common shares outstanding 80,828 79,562 74,696 72,556 67,508		\$	1.24	\$			1.24	\$	1.24	\$	1.24
		- 80					74,696		72,556		67,508
	Adjusted weighted-average shares			•	79,719		74,974		72,954		67,884

Hawaiian Electric Industries, Inc. and Subsidiaries Unaudited

(in thousands, except per share amounts)		1Q06
Revenues		
Electric utility	\$	475,056
Bank	•	100,004
Other		(98)
		574,962
Expenses		
Electric utility		429,476
Bank		72,989
Other		3,346
		505,811
Operating income (loss)		
Electric utility		45,580
Bank		27,015
Other		(3,444)
		69,151
Interest expenseother than bank		(19,117)
Allowance for borrowed funds used during construction		702
Preferred stock dividends of subsidiaries		(473)
Allowance for equity funds used during construction		<u> 1,548</u>
Income before income taxes		51,811
Income taxes		19,474
Net Income		32,337
Basic earnings per common share	\$	0.40
Diluted earnings per common share	\$	0.40
Dividends per common share	\$	0.31
Weighted-average number of common shares outstanding		80,981
Adjusted weighted-average shares		81,363

Consolidated Statements of Income

Hawaiian Electric Industries, Inc. and Subsidiaries Unaudited

(in thousands, except per share amounts)	1	Q05	2Q05	30	205 -		4Q05	 2005
Revenues								
Electric utility	\$ 3	74,775	\$ 429,730	\$ 49	1,339	\$	510,540	\$ 1,806,384
Bank		97,224	91,946	g	7,431		101,309	387,910
Other		629	586		7,145		12,910	21,270
	4	72,628	522,262	59	5,915	1	624,759	2,215,564
Expenses								
Electric utility	3	43,169	387,083	44	13,806		470,623	1,644,681
Bank		68,271	69,744		71.493		73,501	283,009
Other		4,517	3,986		3.377		4.572	16,452
	4	15,957	460,813	51	18,676		548,696	 1,944,142
Operating income (loss)		,	 		,	•		7,0 7 1,7 7 1
Electric utility		31,606	42,647	4	17,533		39,917	161,703
Bank		28.953	22,202		25.938		27,808	104,901
Other		(3,888)	(3,400)		3,768		8,338	4,818
		56,671	 61,449	7	77,239		76,063	 271,422
Interest expense-other than bank		18,835)	(19,130)		8,990)		(18,354)	 (75,309)
Allowance for borrowed funds used during construction	,	427	475	•	558		560	2,020
Preferred stock dividends of subsidiaries		(476)	(474)		(471)		(473)	(1,894)
Allowance for equity funds used during construction		1,087	1,182		1,406		1,430	5,105
Income from continuing operations before income taxes		38,874	43,502	5	9,742		59,226	201,344
Income taxes		14,779	15,167	2	22,252		21,702	73,900
Income from continuing operations		24,095	28,335	- 3	37,490		37,524	127,444
Discontinued operations-loss on disposal, net of tax benefits		-	(755)		•		-	(755)
Net income	\$	24,095	\$ 27,580	\$ 3	37,490	\$	37,524	\$ 126,689
Basic earnings (loss) per common share								
Continuing operations	\$	0.30	\$ 0.35	\$	0.46	\$	0.46	\$ 1.58
Discontinued operations	_	-	(0.01)		-			(0.01)
	\$	0.30	\$ 0.34	\$	0.46	\$	0.46	\$ 1.57
Diluted earnings per common share	5	0.30	\$ 0.34	\$	0.46	\$	0.46	\$ 1.56
Dividends per common share	\$	0.31	\$ 0.31	\$	0.31	\$	0.31	\$ 1,24
Weighted-average number of common shares outstanding		80,701	 80,814		30,903		80,925	80,828
Adjusted weighted-average shares		81,135	81,213	- (31,354		81,338	81,200

Consolidated Statements of Income
Hawaiian Electric Industries, Inc. and Subsidiaries
Unaudited

(in thousands, except per share amounts)		1Q04		2Q04		3004		4Q04		2004
Revenues										
Electric utility	\$	346,613	\$	370,605	\$.	410.077	\$	423,376	\$ 1	,550,671
Bank	•	89.258	•	89.982	•	90.296	•	94,748	•	364,284
Other		1,239		1,211		6,386		266		9,102
		437,110		461,798		506,759		518,390	1	,924,057
Expenses										
Electric utility		302,473		324,691		357,364		392,240	. 1	,376,768
Bank		63,150		66.971		63.765		65,424		259,310
Other .		3,650		3,190		3,944		6,235		17,019
		369,273		394,852		425,073		463,899	1	,653,097
Operating income (loss)										
Electric utility		44,140		45,914		52,713		31,136		173,903
Bank		26,108		23,011		26,531		29,324		104,974
<u>Other</u>		(2,411)		(1,979)		2,442		(5,969)		(7,917)
		67,837		66,946		81,686		54,491		270,960
Interest expenseother than bank		(21,447)		(19,106)		(18,376)		(18,247)		(77,176)
Allowance for borrowed funds used during construction		644		733		859		306		2,542
Preferred stock dividends of subsidiaries		(475)		(475)		(475)		(476)		(1,901)
Allowance for equity funds used during construction		1,449		1,673		1,934		738		5,794
Income from continuing operations before income taxes		48,008		49,771		65,628		36,812		200,219
Income taxes	_	17,076		38,533		24,869		12,002		92,480
Income from continuing operations		30,932		11,238		40,759		24,810		107,739
Discontinued operations-gain on disposal, net of income taxes	_	-				1,913				1,913
Net Income	\$_	30,932	\$	11,238	\$	42,672	\$	24,810	\$	109,652
Basic earnings per common share										
Continuing operations	\$	0.40	\$	0.14	\$	0.51	\$	0.31	\$	1.36
Discontinued operations		•				0.02	_		_	0.02
	\$	0.40	\$	0.14	\$	0.53	\$		\$_	1.38
Diluted earnings per common share	\$	0.40	\$	0.14	5	0.53	\$	0.31	\$	1.38
Dividends per common share	\$	0.31	\$	0.31	\$	0.31	\$	0.31	\$	1.24
Weighted-average number of common shares outstanding		76,738		80,350		80,509		80,630		79,562
Adjusted weighted-average shares		77,156		80,707		80,828		80,981		79,719

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Consolidated Balance Sheets						
Hawaiian Electric Company, Inc. and Subsidiaries						
Unaudited	March 31,	•		December 31.		
(in thousands)	2006	2005	2004	2003	2002	2001
ASSETS						
Utility plant, at cost						
Property, plant and equipment	\$3,849,390	\$3,782,565	\$3,606,908	\$3,336,004	\$3,217,016	\$3,100,297
Less accumulated depreciation	(1,482,595)					(1,120,858)
Construction in progress	123,530	147,756	102,949	195,295	164,300	170,558
	2,490,325	2,473,784	2,348,154	2,240,370	2,175,980	2,149,997
Current assets						
Cash and equivalents	1,884	143	327	158	1,726	1,858
Customer accounts receivable, net	112,170	123,895	102,007	91,999	87,113	81,872
Accrued unbilled revenues, net	81,408	91,321	79,028	60,372	60,098	52,623
Other accounts receivable, net	10,156	14,761	6,499	2,333	2,213	2,652
Fuel oil stock, at average cost	93,283	85,450	58,570	43,612	35,649	24,440
Materials and supplies, at average cost	28,795	26,974	23,768	21,233	19,450	19,702
Prepayments and other	108,776	114,902	114,345	86,763	75,610	53,744
	436,472	457,446	384,544	306,470	281,859	236,891
Other long-term assets						-
Regulatory assets	111,438	110,718	108,630	106,542	105,568	111,376
Other	38,438	39,513	38,287	34,416	35,597	36,948
	149,876	150,231	146,917	140,958	141,165	148,324
	\$3,076,673	\$3,081,461		\$2,687,798	\$2,599,004	\$2,535,212
CAPITALIZATION AND LIABILITIES			<u> </u>			<u> </u>
Capitalization						
Common stock equity	\$1,046,607	\$1,039,259	\$1,017,104	\$ 944,443	\$ 923,256	\$ 877,154
Cumulative preferred stock-	V 1,0 10,007	4 .,555,255	V 1,011,110	4 3 · · , · · · ·	7 020,200	• • • • • • • • • • • • • • • • • • • •
not subject to mandatory redemption	34,293	34,293	34,293	34,293	34,293	34,293
HECO-obligated mandatorily redeemable trust preferred	•		•	•	•	
securities of subsidiary trusts holding solely						
HECO and HECO-guaranteed debentures	-	•	-	100,000	100,000	100,000
Long-term debt, net	766,041	765,993	752,735	699,420	705,270	670,674
	1,846,941	1,839,545	1,804,132	1,778,156	1,762,819	1,682,121
Current liabilities					-	
Long-term debt due within one year	-	-	•	-	-	14,595
Short-term borrowings-nonaffiliates	145,157	136,165	76,611	-	-	-
Short-term borrowings-affiliate	-	-	11,957	6,000	5,600	48,297
Accounts payable	115,465	122,201	94,015	72,377	59,992	53,966
interest and preferred dividends payable	14,441	9,990	10,738	11,303	11,532	11,765
Taxes accrued	114,111	133,583	105,925	93,303	79,133	86,058
Other	31,761	37,132	34,981	34,015	28,020	29,799
41 3 2004	420,935	439,071	334,227	216,998	184,277	244,480
Deferred credits and other liabilities		000 07:	400 400	470.044	4E0 207	145.608
Deferred income taxes	203,972	208,374	189,193	170,841	158,367	145,606
Regulatory liabilities	224,598	219,204	197,089	178,424 47,066	162,618 47,985	48,512
Unamortized tax credits	56,242	55,327	53,208	62,344	64,844	55,460
Other	63,293	63,677 546,582	66,261 505,751	458,675	433,814	395,054
	548,105	256,263	235,505	233,969	218,094	213,557
Contributions in aid of construction	260,692				\$2,599,004	\$2,535,212
·	\$3,076,673	\$3,081,461	\$2,879,615	\$2,001,130	φ Ζ ,υσσ,υυ 4	عدربيبراد الا

Consolidated Statements of Income
Hawaiian Electric Company, Inc. and Subsidiaries
Unaudited

Years ended December 31	2005	2004	2003	2002	2001
(in thousands)				•	
Operating revenues	\$1,801,710	\$1,546,875	\$1,393,038	\$1,252,929	\$1,284,312
Operating expenses					
Fuel oil	639,650	483,423	388,560	310,595	346,728
Purchased power	458,120	398,836	368,076	326,455	337,844
Other operation	172,962	157,198	155,531	131,910	125,565
Maintenance	82,242	77,313	64,621	66,541	61,801
Depreciation	122,870	114,920	110,560	105,424	100,714
Taxes, other than income taxes	167,295	143,834	130,677	120,118	120,894
Income taxes	45,029	50,059	50,175	56,729	55,434
	1,688,168	1,425,583	1,268,200	1,117,772	1,148,980
Operating income	113,542	121,292	124,838	135,157	135,332
Other income					
Allowance for equity funds used during construction	5,105	5.794	4.267	3.954	4.239
Other, net	3,538	3,132	1,903	3,141	3,197
	8,643	8,926	6,170	7,095	7,436
Income before interest and other charges	122,185	130,218	131,008	142,252	142,768
Interest and other charges	•				
Interest on long-term debt	43,063	42,543	40,698	40,720	40,296
Amortization of net bond premium and expense	2,212	2,289	2,131	2,014	2,063
Other interest charges	4,133	4,756	1,512	1,498	4,697
Allowance for borrowed funds used during construction	(2,020)	(2,542)	(1,914)	(1,855)	(2,258)
Preferred stock dividends of subsidiaries	915	915	915	915	915
Preferred securities distributions of trust subsidiaries	-	•	7,675	7,675	7,675
	48,303	47,961	51,017	50,967	53,388
Income before preferred stock dividends of HECO	73,882	82,257	79,991	91,285	89,380
Preferred stock dividends of HECO	1,080	1,080	1,080	1,080	1,080
Net Income for common stock	\$ 72,802	\$ 81, <u>177</u>	\$ 78,911	\$ 90,205	\$ 88,300
KWH sales (millions)	10,090	10,063	9,775	9,544	9,370



Consolidated Statements of Income
Hawaiian Electric Company, Inc. and Subsidiaries
Unaudited

(in thousands)	1Q06				
Operating revenues	\$_	473,971			
Operating expenses		-			
Fuel oil		175,338			
Purchased power		117,720			
Other operation		42,019			
Maintenance		17,052			
Depreciation		32,533			
Taxes, other than income taxes		44,523			
Income taxes		13,224			
		442,409			
Operating income		31,562			
Other income					
Allowance for equity funds used during construction		1,548			
Other, net		909			
		2,457			
Income before Interest and other charges		34,019			
Interest and other charges		· 			
Interest on long-term debt		10,778			
Amortization of net bond premium and expense		543			
Other interest charges		1,913			
Allowance for borrowed funds used during construction		(702)			
Preferred stock dividends of subsidiaries		229			
	•	12,761			
Income before preferred stock dividends of HECO		21,258			
Preferred stock dividends of HECO		270			
Net income for common stock	\$	20,988			
KWH sales (millions)		2,390			

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Consolidated Statements of Income
Hawaiian Electric Company, Inc. and Subsidiaries
Unaudited

(in thousands)	<u> 1Q0</u>	<u>)5</u>	 2Q05		3Q05		<u>4Q05</u>		2005
Operating revenues	\$ 373	,690	\$ 428,807	\$ 4	489,877	\$	509,336	\$ 1	<u>,80</u> 1,710
Operating expenses									
Fuel oil	115	626	148,775		182,663		192,586		639,650
Purchased power		216	106,369		122,086		128,449		458,120
Other operation	41	316	41,794		41,974		47,878		172,962
Maintenance	17	938	19,837		21,141		23,326		82,242
Depreciation	30	820	30,822		30,655		30,573		122,870
Taxes, other than income taxes	35	,971	39,293		44,990		47,041		167,295
Income taxes	7	738	12,293		13,754		11,244		45,029
	350	625	399,183		457,263		481,097	1	,688,168
Operating Income	23	,065	29,624		32,614		28,239		113,542
Other income			``			-			
Allowance for equity funds used during construction	1	087	1,182		1,406		1,430		5,105
Other, net		843	777		1,191		727		3,538
	1	,930	1,959		2 <u>,5</u> 97		2,157		8,643
Income before interest and other charges	24	,995	31,583		35,211		30,396		122,185
Interest and other charges									
Interest on long-term debt	10	,909	10,656		10,731		10,767		43,063
Amortization of net bond premium and expense		556	557		545		554		2,212
Other interest charges		,073	702		1,408		950		4,133
Allowance for borrowed funds used during construction		(427)	(475)		(558)		(560)		(2,020)
Preferred stock dividends of subsidiaries		229	229		228		229		915
	12	,340	11,669		12,354		11,940		48,303
Income before preferred stock dividends of HECO		.655	19,914		22,857		18,456		73,882
Preferred stock dividends of HECO		270	270		270		270		1,080
Net income for common stock	\$ 12	385	\$ 19,644	\$	22,587	\$	18,186	\$	72,802
KWH sales (millions)	2	,347	2,519		2,672		2,552		10,090

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Consolidated Statements of Income
Hawaiian Electric Company, Inc. and Subsidiaries
Unaudited

(in thousands)	1Q04	2Q04	3Q04	4Q04	2004
Operating revenues	\$ 345,944	\$ 369,393	\$ 408,766	\$ 422,772	\$ 1,546,875
Operating expenses	-	<u></u>			
Fuel oil	97,086	114,496	128,584	143,257	483,423
Purchased power	92,239	94,267	105,985	106,345	398,836
Other operation	34,269	36,877	39,151	46,901	157,198
Maintenance	16,996	15,910	17,219	27,188	77,313
Depreciation	28,744	28,744	28,586	28,846	114,920
Taxes, other than income taxes	32,884	34,198	37,588	39,164	. 143,834
Income taxes	12,887	13,779	16,788_	6,605	50,059
	315,105	338,271	373,901	398,306	1,425,583
Operating income	30,839	31,122	34,865	24,466	121,292
Other income	_				
Allowance for equity funds used during construction	1,449	1,673	1,934	738	5,794
Other, net	641	1,088	1,157	246	3,132
	2,090	2,761	3,091	984	8,926
Income before Interest and other charges	32,929	33,883	37,956	25,450	130,218
Interest and other charges	_				
Interest on long-term debt	10,070	10,825	10,821	10,827	42,543
Amortization of net bond premium and expense	569	577	578	565	2,289
Other interest charges	2,412	980	743	621	4,756
Allowance for borrowed funds used during construction	(644)	(733)) (859)	(306)	(2,542)
Preferred stock dividends of subsidiaries	229	229	228	229	915
	12,636	11,878	11,511	11,936	47,961
Income before preferred stock dividends of HECO	20,293	22,005	26,445	. 13,514	82,257
Preferred stock dividends of HECO	270	270	270	270	1,080
Net income for common stock	\$ 20,023	\$ 21,735	\$ 26,175	\$ 13,244	\$ 81,177
KWH sales (millions)	2,368	2,473	2,675	2,547	10,063

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Consolidated Balance Sheets						
American Savings Bank, F.S.B. and Subsidia	aries					
Unaudited						
	March 31,			December 31	<u> </u>	
(In thousands)	2006	2005	2004	2003	2002	2001
ASSETS						
Cash and equivalents	\$ 237,222	\$ 207,564	\$ 161,786	\$ 266,276	\$ 214,704	\$ 425,595
Available-for-sale investment and					,	
mortgage-related securities	2,609,160	2,629,351	2,953,372	2,716,624	2,736,679	2,354,849
Investment in stock of Federal Home Loan						, ,
Bank of Seattle, at cost	97,764	97,764	97,365	94,624	89,545	84,211
Loans receivable, net	3,618,246	3,566,834	3,249,191	3,121,979	2,993,989	2,857,622
Other	213,623	244,443	213,528	221,718	196,117	187,217
Goodwill and other intangibles	88,900	89,379	91,263	93,987	97,572	101,954
	\$6,864,915	\$6,835,335	\$6,766,505	\$6,515,208	\$6,328,606	\$6,011,448
LIABILITIES AND STOCKHOLDERS' EQUITY						
Deposit liabilities	\$4,610,399	\$4,557,419	\$4,296,172	\$4,026,250	\$3,800,772	\$3,679,586
Other borrowings	1,623,287	1,622,294	1,799,669	1,848,388	1,843,499	1,715,932
Other	79,721	98,189	110,938	97,429	137,888	130,494
	6,313,407	6,277,902	6,206,779	5,972,067	5,782,159	5,526,012
Minority interests		_	3,415	3,417	3,417	3,409
Preferred stock	•	-	-	75,000	75,000	75,000
	•	-	3,415	78,417	78,417	78,409
Common stock	321,792	321,538	320,501	244,568	243,628	242,786
Retained earnings	279.867	272,545	243,001	221,109	192,692	165,564
Accumulated other comprehensive	2,5,007	2,2,040	2-10,001	22.,.00	.02,002	.00,00
income (loss)	(50,151)	(36,650)	(7,191)	(953)	31,710	(1,323)
meetic flood	551,508	557,433	556,311	464,724	468,030	407,027
	001,000		\$6,766,505	\$6,515,208	\$6,328,606	\$6,011,448

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Consolidated Statements of Income

American Savings Bank, F.S.B. and Subsidiaries Unaudited	· · · ·				
Years ended December 31	2005	2004	2003	2002	2001
(dollars in thousands)					
Interest and dividend income					
Interest and fees on loans	\$ 205,084	\$ 184,773	\$ 198,948	\$ 203,082	\$ 231,858
Interest and dividends on investment and mortgage-related securities	125,924	122,347	113,880	143,148	167,793
	331,008	307,120	312,828	346,230	399,651
Interest expense					
Interest on deposit liabilities	52,064	47,184	53,808	73,631	116,531
Interest on other borrowings	69,362	<u>65,603</u>	69,516	79,251	97,054
	121,426	112,787	123,324	152,882	213,585
Net interest income	209,582	194,333	189,504	193,348	186,066
Provision (reversal of allowance) for loan losses	(3,100)	(8,400)	3,075	9,750	12,500
Net Interest income after provision					
(reversal of allowance) for loan losses	212,682	202,733	186,429	183,598	173,566
Noninterest income					
Fees from other financial services	25,790	23,560	22,817	21,254	17,194
Fee income on deposit liabilities	16,989	17,820	16,971	15,734	9,401
Fee income on other financial products	9,058	10,184	9,920	10,063	8,451
Gain (loss) on sale of securities	175	(70)	4,085	(640)	8,044
Writedown of investments	-	•	-	-	(6,164
Other income	4,890	5,670	4,699	6,614	8,025
	56,902	57,164	58,492	53,025	44,951
Noninterest expense					
Compensation and employee benefits	69,082	65,052	65,805	59,594	51,932
Occupancy and equipment	30,777	30,752	30,546	30,086	28,638
Services	15,466	12,863	12,529	12,946	9,176
Data processing	10,598	11,794	10,668	11,167	10,408
Amortization of goodwill and core deposit intangibles	1,730	1,730	1,730	1,731	6,706
Other expense	37,030	32,732	30,888	28,216	29,558
	164,683	154,923	152,166	143,740	136,418
Income before minority interests and income taxes	104,901	104,974	92,755		82,099
Minority interests	45	97	124	173	213
Income taxes	39,969	58,404	30,959	31,074	27,944
Income before preferred stock dividends	64,887	46,473	61,672		53,942
Preferred stock dividends	4	5,411	5,411	5,411	5,411
Net income for common stock	\$ 64,883	\$ 41,062 ¹	\$ 56,261	\$ 56,225	\$ 48,531
Net interest margin	3.29%	3.15%	3.17%	3.37%	3.319

^{1 2004} net income included a \$20 million charge to settle a tax dispute with the State of Hawaii concerning the deductibility of dividends from the bank's real estate investment trust subsidiary for tax years 1999 through 2004.

Consolidated Statements of Income American Savings Bank, F.S.B. and Subsidiaries Unaudited

(dollars in thousands)		1006
Interest and dividend income		
Interest and fees on loans	\$	55,153
Interest and dividends on investment and mortgage-related securities	•	30,077
		85,230
Interest expense		
Interest on deposit liabilities		15,393
Interest on other borrowings		17,162
		32,555
Net interest income		52,675
Provision for loan losses		-
Net interest income after provision for loan losses		52,675
Honinterest Income		
Fees from other financial services		6,440
Fee income on deposit liabilities		4,189
Fee income on other financial products		2,437
Gain on sale of securities		-
Other income		1,708
		14,774
Noninterest expense		
Compensation and employee benefits		17,837
Occupancy and equipment		7,959
Services		3,717
[)ata processing		2,460
()ther expense		8,461
		40,434
Income before income taxes		27,015
Income taxes		10,188
Net income for common stock	\$	16,827
Net interest margin		3.29%

Consolidated Statements of Income
American Savings Bank, F.S.B. and Subsidiaries
Unaudited

(dollars in thousands)	1Q05	2005	3Q05	4Q05	2005
Interest and dividend income					
Interest and fees on loans	\$ 48,513	\$ 50,657	\$ 52,649	\$ 53,265	\$ 205,084
Interest and dividends on investment and mortage-related securities	34,863	27 <u>,52</u> 3	30,889	32,649	125,924
	83,376	78,180	83,538	85,914	331,008
Interest expense					
Interest on deposit liabilities	12,017	12,460	13,355	14,232	52,064
Interest on other borrowings	17,748	16,893	17,278	17,443	69,362
	29,765	29,353	30,633	31,675	121,426
Net Interest Income	53,611	48,827	52,905	54,239	209,582
Reversal of allowance for loan losses	(3,100)		•		(3,100)
Net interest income after reversal of allowance for loan losses	56,711	48,827	52,905	54,239	212,682
Noninterest income					
Fees from other financial services	5,863	6,333	6,512	7,082	25,790
Fee income on deposit llabilities	4,171	4,092	4,311	4,415	16,989
Fee income on other financial products	2,435	2,154	2,191	2,278	9,058
Gain on sale of securities		175	· -	• -	175
Other income	1,379	1,012	879	1,620	4,890
	13,848	13,766	13,893	15,395	56,902
Noninterest expense					
Compensation and employee benefits	16,627	17,441	17,275	17,739	69,082
Occupancy and equipment	7,417	7,390	7,769	8,201	30,777
Services	3,667	3,941	3,986	3,872	15,466
Data processing	3,045	2,503	2,491	2,559	10,598
Other expense	10,850	9,116	9,339	9,455	38,760
	41,606	40,391	40,860	41,826	164,683
Income before minority interests and income taxes	28,953	22,202	25,938	27,808	104,901
Minority interests	27	. 18	-	-	45
Income taxes	11,162	8,631	10,027	10,149	39,969
Income before preferred stock dividends	17,764	13,553	15,911	17,659	64,887
Preferred stock dividends	3	1	<u> </u>		4
Net income for common stock	\$ 17,761	\$ 13,552	\$ 15,911	\$ 17,659	\$ 64,883
Net Interest margin	3.36%	3.07%	3.33%	3.41%	3.29%

(dollars in thousands)		1Q04	2Q04		3Q04	4Q04	2004
Interest and dividend income							
Interest and fees on loans	\$	46,409	\$ 45,832	\$	45,504	\$ 47,028	\$ 184,773
Interest and dividends on investment and mortage-related securities	_	28,825	 29,224		31,227	33,071	122,347
		75,234	75,056		76,731	80,099	307,120
Interest expense							
Interest on deposit liabilities		12,210	11,464		11,660	11,850	47,184
Interest on other borrowings		15,743	15,578		16,488	17,794	65,603
		27,953	27,042		28,148	29,644	112,787
Net interest income		47,281	48,014		48,583	50,455	194,333
Reversal of allowance for loan losses	٠	(1,600)	(3,000)		(3,800)		(8,400)
Net interest income after reversal of allowance for loan losses		48,881	51,014		52,383	 50,455	202,733
Noninterest income							
Fees from other financial services		5,582	6,160		5,980	5,838	23,560
Fee income on deposit liabilities		4,381	4,276		4,619	4,544	17,820
Fee income on other financial products		2,976	2,646		2,328	2,234	10,184
Gain (loss) on sale of securities		. 16	-		(86)	-	(70)
Other income		1,069	 1,844		724	2,033	5,670
		14,024	14,926		13,565	14,649	57,164
Noninterest expense							
Compensation and employee benefits		15,755	15,704		16,044	17,549	65,052
Occupancy and equipment		7,923	7,651		7,520	7,658	30,752
Services		2,531	3,190		3,292	3,850	12,863
Data processing		2,823	2,777		2,949	3,245	11,794
Other expense		7,765	 13,607		9,612	 3,478	34,462
		36,797	42,929		39,417	 35,780	154,923
Income before minority interests and income taxes		26,108	23,011		26,531	29,324	104,974
Minority Interests		26	23		24	24	97
Income taxes		8,803	 28,584	_	9,776	11,241	58,404
Income (loss) before preferred stock dividends		17,279	(5,596)		16,731	18,059	46,473
Preferred stock dividends		1,352	1,353		1,353	 1,353	5,411
Net income (loss) for common stock	\$	15,927	\$ (6,949)	\$	15,378	\$ 16,706	\$ 41,062
Net Interest margin		3.12%	 3.14%		3.16%	3.10%	3.15%

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Public Utilities Commission of the State of Hawaii Commissioner Biographies

Carlito "Carl" P. Caliboso, Chairman

- Serving as Chairman since April 30, 2003
- Serving in second term which ends on June 30, 2010
- Attorney
- Prior to appointment, was a partner in a private law practice, with an emphasis in business
 and transactional matters, including real estate transactions, land use and commercial finance
 and leasing
- University of Hawaii (BBA, Finance)
- University of Hawaii (JD)

Wayne H. Kimura

- Began serving on the Commission in December 2001
- Served as Chairman from July 2002 to April 2003
- Term ends June 30, 2008
- Extensive history in public service, serving both the executive and legislative branches of the state government
- Prior to appointment, was State Comptroller, Department of Accounting and General Services

Held the following positions in government:

- Budget Analyst/Researcher for Senate Ways and Means Committee
- Program Budget Analyst for Department of Social Services and Housing
- Acting Program Budget Analysis Administrator for Department of Budget and Finance
- Acting Business Services Officer for Lieutenant Governor's Office
- Planning and Policy Analyst in Governor's Office
- Deputy Director of Department of Budget and Finance
- University of Southern California (BA, Psychology, credits towards MBA)

Janet E. Kawelo

- Began serving on the Commission in January 2002
- Term ends June 30, 2006
- Prior to appointment, was Deputy Director of Department of Land & Natural Resources
- Research Officer in the Economic Research Division at First Hawaiian Bank (14 years)
- Researcher for Senate Ways and Means Committee
- Researcher in Lieutenant Governor's Office
- Special Assistant and Research Supervisor in Governor's Office
- University of California at Berkeley (BA, Bacteriology)
- University of Hawaii (professional diploma in elementary education)

Hawaiian Electric Company, Inc. 2005 Oahu Rate Case Docket #04-0113

Application date:

Test year: Evidentiary hearing:

Interim decision:

Final decision:

November 12, 2004 Calendar year 2005

September 15-19, 2005

September 27, 2005

(\$ in millions)	REQUE	<u>st</u>	INTERIM		FINAL	
Return on average common equity	11.50%	6	10.7%			
Increase With energy conservation programs Without energy conservation programs Average adjusted rate base Return on average adjusted rate base	\$98.6 or 9 \$74.2 or 7 \$1,092 9.11%	'.3% 2	\$53.3 or 4 \$41.1 or 3 \$1,109 8.66%	.33% 9		
Kilowatthour sales	7,843 GV	٧H	7,856 GWH			
CAPITAL STRUCTURE (%) Short-term debt Long-term debt Hybrid Securities Preferred stock Common equity Composite	Capitalization 3.47 36.85 2.37 1.78 55.54	Cost 3.50 6.30 7.55 5.54 11.50 9.11	Capitalization 3.25 36.81 2.37 1.78 55.79	Cost 3.50 6.25 7.55 5.54 10.70 8.66	Capitalization	Cost

Hawaiian Electric Company, Inc. 1995 Oahu Rate Case Docket #7766

Application date:

Test year:

Evidentiary hearing:

Interim decisions:

Final decision:

December 27, 1993

Calendar year 1995

November 14-22, 1994

December 30, 1994

August 30, 1995

December 11, 1995

(\$ in millions)	\$ in millions)		FINAL REQUEST		<u> S</u>	<u>FINAL</u>		
Return on average commo	on equity	13.25%	6	12.6%		11.4%		
Increase .		\$28.2 or 4	.1%	\$18.8 or 2.	7%	\$9.1 or 1.3	.3%	
Average adjusted rate bas	e	\$802		\$755		\$800		
Return on average adjuste	ed rate base	10.119	6	9.78%		9.16%		
Kilowatthour sales		6,813 GV	VH	6,813 GWH		6,813 GW	МН	
IMPLEMENTATION STE	<u>PS</u>							
Interim	Jan 1, 1995	\$17.9		\$10.6				
Merit increase	May 1, 1995	1.4		1.4				
Bargaining unit increase	Nov 1, 1995	1.4		1.4				
Waiau-CIP transmission line, Phases 1 & 2	Aug 31, 1995	7.5		. 5.4				
Total		<u>\$28.2</u>	<u>\$28.2</u>		<u>\$18.8</u>			
CAPITAL STRUCTURE (9	<u>6)</u>					-		
Short-term debt Long-term debt Preferred stock Common equity Composite		Capitalization 5.46 38.76 6.98 48.80	Cost 6.00 7.24 7.28 13.25 10.11	Capitalization 5.46 38.76 6.98 48.80	Cost 6.00 7.20 7.28 12.60 9.78	Capitalization 5.46 38.76 6.98 48.80	Cost 6.00 7.13 7.28 11.40 9.16	

Hawaii Electric Light Company, Inc. 2000 Big Island Test Year Rate Case Docket #99-0207

Application date: Test year: Evidentiary hearing: Final decision:

October 25, 1999 Calendar year 2000 August 2000 February 8, 2001

(\$ in millions)	FINAL REQI	JEST	INTE	R <u>IM</u>	SECOND	INTERIM	FINA	<u>L</u>
Return on average common equity	13.25%	1	11.6	5%	11.6	5%	11.50	%
Increase	\$15.5 or 9.	0%	\$3.5 or	1.9%	\$2.6 or	r 1.5%	\$2.3 or 1	
Average rate base	\$263.7		\$24	4.2	\$24	0.0	\$249	
Return on rate base	10.01%	1	9.21	l% ·	•		9.14%	
Kilowatthour sales	935.8 GW	/H	935.8	GWH	935.8	GWH	935.8 G	
IMPLEMENTATION STEPS								
Interim	\$12.9 on Sep 1, 2	000	\$3. on Sep 1				\$3.5	i
Hamakua Energy Partners - Phase 2	\$2.6 on or abo Nov 21, 20	out	·	,	\$2 O Jan 5,	n	\$2.6	i
Final	Balance r granted ab						\$2.3 effective Feb	
Total	\$15.5	•••					\$8.4	
CAPITAL STRUCTURE (%)								
	CAP.	COST	CAP.	COST	CAP.	COST	<u>CAP</u> .	COST
Short-term debt	5.78	6.50	5.78	6.50	same as	interim	5.78	6.50
Long-term debt	36.78	6.49	36.78	6.49			36.78	6.49
Hybrid securities/pfd stock	7.76	8.54	7.76	8.54			7.75	8.54
Common equity	49.69	<u>13.25</u>	49.69	<u>11.65</u>			49.69	<u>11.50</u>
Composite		10.01		9.21				<u>9.14</u>

Maui Electric Company, Limited 1999 Maui Rate Case Docket #97-0346

Application date:

Test year:

January 9, 1998

Evidentiary hearing:

Calendar Year 1999

Interim decision:

October 27, 1998

December 28, 1998

Final decision (as amended):

April 6, 1999

(\$ in millions)	FINAL <u>REQUES</u>	•	INTERIM		<u>FINAL</u>			
Return on average common equity	12.75%	6	11.12%		10.94%	ı		
Increase	\$16.4 or 11	1.9%	\$11.7 or 8.5%		\$11.3 or 8.	2%		
Average rate base	\$311		\$310	\$310				
Return on rate base	9.72%		8.92%		8.83%	33%		
Kilowatthour sales	1,063 GV	V H	1,063 GWH		1,063 GWH		1,063 GWł	
IMPLEMENTATION STEPS								
Interim	\$11.7 effective Jan	1, 1999	\$11.7 effective Jan	1, 1999				
Final	Balance not granted above				<u>\$11.3</u>			
CAPITAL STRUCTURE (%)								
Long-term debt	Capitalization 44.03	<u>Cost</u> 6.54	Capitalization 44.03	Cost 6.54	Capitalization 44.03	Cos 6.54		
Hybrid securities	5.75	8.58	5.75	8.58	5.75	8.5		
Preferred stock	1.38	8.48	1.38	8.48	1.38	8.4		
Common equity Composite	48.84	<u>12.75</u> <u>9.72</u>	48.84	11.12 _8.92	48.84	10.94 _ 8.83		

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CA-IR-225

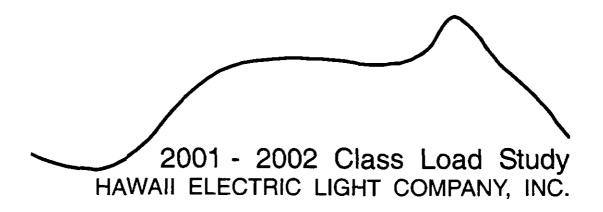
Ref: T-20, page 12, Allocation of Costs.

Please provide complete copies of the HELCO load studies relied upon to develop allocation factors used by Mr. Young in the embedded cost of service study.

HELCO Response:

The requested information is voluminous and is available for inspection at HECO's Regulatory Affairs Division office, Suite 1301, Central Pacific Plaza, 220 South King Street, Honolulu, Hawaii. Please contact Dean Matsuura at 543-4622 to make arrangements to inspect the requested information.

Mr. Young relied upon a draft version of the Class Load Study in preparing the embedded cost of service study. Two values used from the draft version of the Class Load Study have been revised: 1) on Table 4.14, "Summary of the Twelve-Month Load Factors by Rate Class", the Load Factor for Schedule G is 52% (the draft version result was 51%); and 2) On Table 6.1, "Summary of Monthly Load Statistics at the Sales Level, Schedule G: General Service Nondemand", the average customer kWh is 803 kWh per month, and the average maximum noncoincident demand is 4.2 kW for a kWh/kW load factor of 191.19 (the draft version result was 184.65). These values in the Company's cost of service study will be updated in rebuttal testimony.



Ralph B. Earle, Ph. D. Forecasts & Research Division Hawaiian Electric Company, Inc.

George A. Willoughby, Ph. D. Director, Forecasts & Research Hawaiian Electric Company, Inc.

Curtis Beck Manager, Energy Services Department Hawaii Electric Light Company, Inc.

August 2005

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ACKNOWLEDGMENTS

The successful completion of this study would not have been possible without the support provided by:

Program Coordination

Curtis Beck – Manager, Energy Services Department, Hawaii Electric Light Company, Inc. Debra Gomez Ota and Jon Hayashida – Energy Services Department, Hawaii Electric Light Company, Inc.

Tammy Miyashiro - Customer Services Department, Hawaii Electric Light Company, Inc.

Sample Design and Selection

Ralph Earle – Forecasts & Research Division, Customer Solutions Department, Hawaiian Electric Company, Inc.

Meter Procurement

Miles Nagato and Curtis Nakayama - Distribution Department, Hawaii Electric Light Company, Inc.

Meter Installation and Testing

Kevin Waltjen and Dave Okamura - Distribution Department, Hawaii Electric Light Company, Inc.

Data Collection

Bev Akimseu, Sandra Satake and Pamela O'Brien - Accounting Department, Hawaii Electric Light Company, Inc.

Data Translation

Edgar Leung - Customer Service Department, Hawaiian Electric Company, Inc.

Sample Data Analysis

Roger Wright - RLW Analytics, Inc.

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Alan Hee - Manager, Energy Services Department, Hawaiian Electric Company, Inc.

Peter Young - Pricing Division, Customer Solutions Department, Hawaiian Electric Company, Inc.

Printing

Publishing & Records Services, Information Services Department, Hawaiian Electric Company, Inc.

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1. SUMMARY

A. PROJECT OBJECTIVE

From August 2001 through July 2002, the Hawaii Electric Light Company, Inc. (HELCO) collected data to determine individual rate schedule and total system load patterns and characteristics. This class load study report presents the findings.

The purpose of the study was to provide class load data and statistics for use in load forecasting, integrated resource planning, cost-of-service studies, pricing and designing demand-side management programs. The study provides detailed data on how much and when HELCO's customers use electricity. This allows HELCO to better estimate levels of future loads, plan for and utilize existing capacity more efficiently, determine strengths and weaknesses in certain marketing programs, and design fair, reasonable and competitive rates that encourage customer load management.

The study metered and collected 15-minute kW data from 481 selected sample customers covering each rate class, with the exception of Schedule F (public street lighting). Schedule F loads were manually constructed, since all street lights are on either photoelectric or timer controls.

The successful implementation and completion of the study was made possible by the combined efforts of several groups at the Hawaii Electric Light Company on Hawai'i and the Hawaiian Electric Company (HECO) on O'ahu. The Customer Services Department at HELCO was initially responsible for the overall coordination of the study. The Research & Evaluation Division of the Energy Services Department at HECO was responsible for the study design. The Distribution Department at HELCO installed and maintained the meters, the Accounting Department at HELCO collected the data, and the Customer Service Department at HECO translated the data. The Energy Services Department at HECO validated the data, RLW Analytics, of Sonoma California, analyzed the data, and the Energy Services Department at HECO prepared the report.

B. OVERVIEW OF THE REPORT

This report presents a comprehensive account of the methodology and results of the project. Section 2 describes the sample design. Section 3 describes the data collection, validation and expansion to the total class levels. The results of the study are contained in Section 4 for the total system and in Sections 5 through 10 for Schedules R, G, J, H, P and F, respectively. Sections 5 through 10 are in this order to facilitate comparison with previous HELCO class load studies; the tables in Section 4 present the rates in alphabetical order.

C. SUMMARY OF THE FINDINGS

Here are the major findings of the study:

- 1. During the study period, 84% of HELCO's customers were residential (Schedule R). This class accounted for 38% of the total sales and was the largest contributor to the twelve-month system peak (57%) and the second-largest contributor to the twelve-month day peak (28%). Commercial demand customers (Schedule J) accounted for 27% of sales, and were the largest contributor to the day peak (35%). The large power customers (Schedule P) were only 0.1% of customers, but they contributed nearly as much as Schedule J to the day peak (22%). Table 1.1 is a summary of sales, number of customers and contribution to the system and day peak hours by rate class during the study period. Class contributions are also shown in Exhibits 1.1 and 1.2.
- 2. A system peak is the highest demand occurring any time of the day, but it usually occurs in the early evening. From August 2001 through July 2002, the twelve monthly system peaks occurred between 6:32 PM and 7:50 PM. Schedule R contributed the most to the monthly system peaks, averaging 50% and ranging from 42% to 57%. The residential customers' contribution was highest in December. Schedule J was the second-largest contributor, averaging 21% and ranging from 17% to 25%. Schedule J's contribution was highest in June. Table 1.2 and Exhibit 1.3 summarize the contributions to the monthly system peaks.
- 3. A day peak is the highest demand before 5 PM. The twelve day peaks occurred between 10:13 AM and 11:44 AM. Schedule J contributed the most to the monthly day peaks, averaging 34% and ranging from 30% to 38%. Schedule R customers were the second-largest contributors, averaging 29% and ranging from 27% to 34%. Table 1.3 and Exhibit 1.4 summarize the contributions to the monthly day peaks.
- 4. The percentage contributions to the system and the day peaks from Schedules G (9% and 12%, respectively) and H (2% and 3%) were fairly constant throughout the year.
- 5. With the exceptions of Schedule F, Street Light Service, and Schedule U, a Time-of-Use rate with only three customers, the commercial classes peak on weekdays, during the on-peak period (7 AM 9 PM). Only Schedule R peaked during the priority period (5 PM 9 PM, Monday through Friday). Due to the nature of the class, Schedule F always attains its peak shortly after sunset and maintains it until a few minutes before sunrise. As Table 1.4 shows, none of the rate classes had a class peak coincident with the twelve-month system peak on December 17, 2001.
- 6. The load factor measures how efficiently the system's generating capacity is being used. It is the ratio of the total energy consumed during a given period to

the energy which would have been consumed had the peak demand been sustained for the entire duration of the period. The higher the load factor, the flatter the load profile of the class or system being studied. Table 1.5 shows that during the study period Schedule P had the highest load factor, 77%, followed by Schedule J at 54%, Schedule G at 52% and Schedules H and K at 50%. Schedule U had the lowest load factor, 13%, followed by Schedule F at 37% and Schedule R at 46%. Based on the recorded kWh and system peak, the annual load factor for the total system was 70%.

- 7. The average system load on weekdays was higher than the average load on weekends for all twelve months.
- 8. Schedule F This rate applies only to public street lighting customers, of which there were 103 between August 2001 and July 2002, using an average of 3,346 kWh per month. Schedule F had the second-smallest share of total system sales and system peak, accounting for just 0.4% of the recorded total system sales during the study period, and 0.5% of the 12-month system evening peak. Street lighting does not contribute to any day peak. Only 13% of the class' total consumption was during the on-peak period. The 12-month load factor for Schedule F was 37%.
- 9. Schedule G From August 2001 through July 2002 this rate schedule served an average of 9,008 small commercial customers with demands less than 25 kW and monthly consumption under 5,000 kWh. Their average monthly consumption per customer was 803 kWh; the average sample-estimated maximum non-coincident demand per customer was 4.2 kW. During the study period Schedule G contained 14% of customers, but it accounted for only 9% of the total kWh sold. Schedule G's annual load factor was 52%; 60% of its usage was on-peak. The average class contribution to the system day peak was 12%, which was 3% higher than its average contribution to the system evening peak. The weekday load profiles for Schedule G begin increasing at about 7 AM, reach a plateau at noon, where they remain until 3 PM, decrease quickly until 6 PM, and then have a distinct evening peak at 8 PM that is 2-5,000 kWh lower than the mid-day plateau. The weekend load profiles peak slightly at noon, remain at about the same level until 6 PM, then rise to a second peak at 8 PM equal to or higher than the mid-day peak. From 8 AM through 7 PM the average weekday load is about 28% higher than the average weekend load.
- 10. Schedule H From August 2001 through July 2002 this rate served an average of 360 customers with commercial cooking, heating air conditioning and refrigeration loads. About three-quarters of Schedule H customers are billed on the basis of a constant demand determined by inspection at the time the account is started; the remaining customers have demand meters, and come under Schedule K. Because their operations are comparable, the Schedule K customers are included with Schedule H in this report.

- Accounting for less than 3% of the total sales, during the study period, Schedules H and K combined had an average monthly use of 5,503 kWh per customer. The average maximum non-coincident demand per customer was 18 kW. On-peak usage was 63% of total consumption. The annual load factor was 50%. Schedules H and K contributed 2% to the monthly evening peaks and 3% to the monthly day peaks. The weekday load profiles generally show a fast rise from 7 AM to a peak between noon and 3 PM afternoon, and a smooth decline from 3 or 4 PM to midnight. The weekend profiles peak by noon and slowly decline from 3 PM. From 7 AM through 8 PM the average weekday load is about 23% higher than the average weekend load.
- 11. Schedule J This rate applies to commercial customers whose use is above the Schedule G limits of 25 kW and 5,000 kWh per month. From August 2001 through July 2002, 1,265 customers averaged 17,609 kWh per month. The average sample-estimated maximum non-coincident demand per customer was 51 kW. Schedule J's annual load factor was 54%; 57% of its usage was during the on-peak period. Schedule J's contribution to the monthly day peaks, 34%, exceeded its contribution to the monthly evening peaks, 21%. The weekday profiles rise to a plateau by 10 AM and lasts until 3 PM. The weekend plateau begins about 11 AM lasts until 3 PM. Both weekday and weekend profiles show an evening plateau from 7 PM to 10PM. From 7 AM through 6 PM the average weekday load is about 30% higher than the average weekend load.
- 12. Schedule P The largest commercial customers are served under Schedule P. From August 2001 through July 2002, the 61 Schedule P accounts used 22% of the total system energy. The average recorded monthly consumption per customer was 300,612 kWh. The average maximum non-coincident demand per customer was 580 kW. Schedule P had an annual load factor of 77%; 52% of its consumption occurred during the on-peak period. Schedule P's average contribution to the day peak, 22%, exceeded its average contribution to the system peak, 18%. Weekday and weekend use ran parallel, with weekday use only 2% higher than weekend use from 8 AM to 5 PM. The Schedule P load profiles rise fairly smoothly from 4 AM to noon, and decline slowly from 5 PM to 4 AM, with a small peak between 7 PM and 8 PM, August through April.
- 13. Schedule R During the study period, Schedule R's 54,683 accounts constituted 84% of HELCO's customers. The average residential customer used 566 kWh per month; the average sample-estimated maximum non-coincident demand per customer was 4.4 kW. Schedule R's average contribution to the monthly system peak was 50%; its average contribution to the day peak was 29%. Residential customers had an annual load factor of 46%; 52% of the rate class' consumption occurred during the on-peak period. Schedule R's load profiles show a morning peak at between 6AM and 8 AM on weekdays and from 9AM to 11 AM on weekends. The evening peaks were usually between 6 PM and 7 PM. From 8 AM until 7 PM Schedule R's

- weekend loads averaged 15% higher than its weekday loads, but the weekend evening peaks averaged less than 1% lower than the weekday ones.
- 14. Schedule U Between August 2001 and July 2002 only three accounts were on Schedule U, Time-of-Use (off-peak, 9 PM to 7 AM). Because individual customers' records are confidential, a minimal amount of Schedule U data is included in this report.

Table 1.1

SUMMARY STATISTICS

Customers, Sales and Contributions to Peak Hours, by Rate Class

	Number of Customers ¹		Total Sales ¹		Contribution to the System Peak ²		Contribution to the Day Peak ³	
Rate Class	Average No.	Percent	kWH	Percent	kW	Percent	kW	Percent
F	103	0.2	4,116,723	0.4	895	0.5	0	0.0
G	9,008	13.8	86,765,284	8.9	13,489	7.7	19,383	12.0
H/K	360	0.5	23,746,250	2.4	2,999	1.7	5,008	3.1
J	1,265	1.9	267,228,394	27.3	29,130	16.7	57,133	35.4
P	61	0.1	220,257,940	22.5	28,879	16.6	35,204	21.8
R	54,683	83.5	371,667,508	38.0	98,704	56.7	44,669	27.7
<u> </u>	3	0.0	3,442,572	0.4	4	0.0	4	0.0
Total System	65,483	100.0	977,224,671	100.0	174,100	100.0	161,400	100.0

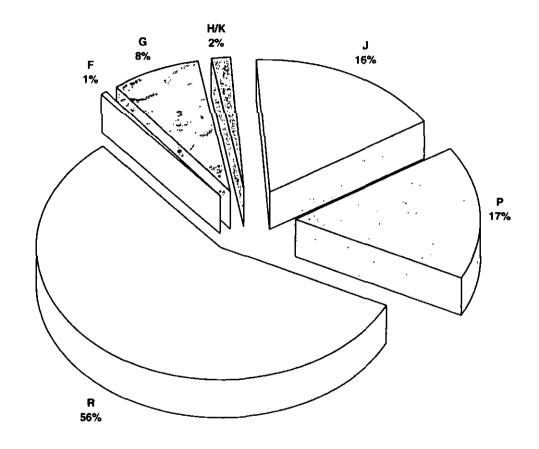
¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² Contribution to the system load during the hour of the instantaneous twelve-month system peak of 174.1 MW on December 17, 2001 @ 18:32.

³ Contribution to the system load during the hour of the instantaneous twelve-month day peak of 161.4 MW on July 31, 2002 @ 10:13.

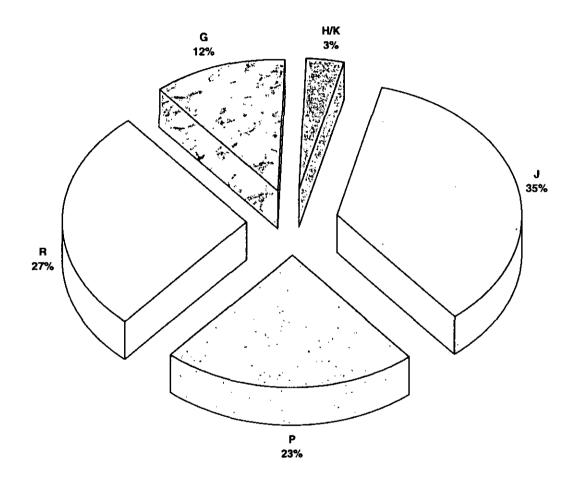
Contributions to peaks are normalized to the hourly net-to-system generation.

Exhibit 1.1
CLASS CONTRIBUTIONS TO THE SYSTEM PEAK



The twelve-month instantaneous net-to-system system peak of 174.1 MW occurred on 12/17/01 @ 18:32.

Exhibit 1.2
CLASS CONTRIBUTIONS TO THE DAY PEAK



The twelve-month instantaneous net-to-system day peak of 161.4 MW occurred on 7/31/02 @ 10:13.

Table 1.2

NORMALIZED CLASS CONTRIBUTIONS TO THE SYSTEM PEAKS
60-Minute Integrated kW Demand at the Net-to-System Generation Level

Month	F_	G	H/K		Р	R	U	Total System ¹
August 2001	0	14.756	3,068	35.542	31,494	83.466	175	168,500
Sep	253	14,120	3,815	38,012	31,072	77,223	5	164,500
Oct	0	14,240	4,012	36,559	31,974	81,411	4	168,200
Nov	914	14,787	3,345	37,236	29,499	85,3 <u>17</u>	4	171,100
Dec	895	13,489	2,999	29,130	28,879	98,704	4	174,100
Jan	526	13,355	3,064	30,729	29,297	93,629	0	170,600
Feb	1,093	14,829	2,817	35,285	29,197	84,978	0	168,200
Mar	1,174	15,211	2,644	33,143	28,277	84,047	5	164,500
Apr	0	14,803	2,554	39,880	30,461	75,598	4	163,300
May	0	11,897	3,043	31,725	27,711	85,120	5	159,500
Jun	824	16,348	3,330	39,267	32,820	67,506	4	160,100
July 2002	637	14,122	3,032	39,738	33,178	75,289	4	166,000

¹ The twelve-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32.

Month	F_	G	H/K	J	P	R	U	Total System
August 2001	0%	9%	2%	21%	19%	50%	0%	100%
Sep	0%	9%	2%	23%	19%	47%	0%	100%
Oct	0%	8%	2%	22%	19%	48%	0%	100%
Nov	1%	9%	2%	22%	17%	50%	0%	100%
Dec	1%	8%	2%	17%	17%	57%	0%	100%
Jan	0%	8%	2%	18%	17%	55%	0%	100%
Feb	1%	9%	2%	21%	17%	51%	0%	100%
Mar	1%	9%	2%	20%	17%	51%	0%	100%
Apr	0%	9%	2%	24%	19%	46%	0%	100%
May	0%	7%	2%	20%	17%	53%	0%	100%
Jun	1%	10%	2%	25%	20%	42%	0%	100%
July 2002	0%	9%	2%	24%	20%	45%	0%	100%

Table 1.3

NORMALIZED CLASS CONTRIBUTIONS TO THE DAY PEAKS
60-Minute Integrated kW Demand at the Net-to-System Generation Level

	_	_	11110		_	_		Totai
<u>Month</u>	F	G	H/K	<u>J</u>	P	R	U	System 1
August 2001	0	19,648	5,647	52,163	34,711	44,285	246	156,700
Sep	0	17,108	5,234	52,402	32,143	44,376	2,438	153,700
Oct	0	18,643	5,698	51,325	36,670	41,059	5	153,400
Nov	0	19,537	4,335	46,044	31,704	52,375	4	154,000
Dec	0	19,983	4,774	50,156	33,069	44,414	4	152,400
Jan	0	19,122	5,259	48,410	33,675	43,034	0	149,500
Feb	0	15,881	4,676	50,456	31,504	44,883	0	147,400
Mar	0	15,633	4,123	51,120	28,631	47,793	0	147,300
Apr	0	16,843	5,134	53,078	33,257	43,683	4	152,000
May	0	15,403	4,581	57,267	32,131	41,612	5	151,000
Jun	0	19,743	5,490	48,504	34,287	46,473	4	154,500
July 2002	0	19,383	5,008	57,133	35,204	44,669	4	161,400

¹ The twelve-month instantaneous net-to-system day peak of 164.1 MW occurred on July 31, 2002 @ 10:13.

Month	F	G	H/K	J	P	R	u	Total System
August 2001	0%	13%	4%	33%	22%	28%	0%	100%
Sep	0%	11%	3%	34%	21%	29%	2%	100%
Oct	0%	12%	4%	33%	24%	27%	0%	100%
Nov	0%	13%	3%	30%	21%	34%	0%	100%
Dec	0%	13%	3%	33%	22%	29%	0%	100%
Jan	0%	13%	4%	32%	23%	29%	0%	100%
Feb	0%	11%	3%	34%	21%	30%	0%	100%
Mar	0%	11%	3%	35%	19%	32%	0%	100%
Apr	0%	11%	3%	35%	22%	29%	0%	100%
May	0%	10%	3%	38%	21%	28%	0%	100%
Jun	0%	13%	4%	31%_	22%	30%	0%	100%
July 2002	0%	12%	3%	35%	22%	28%	0%	100%

Exhibit 1.3
CLASS CONTRIBUTIONS TO THE MONTHLY SYSTEM PEAKS

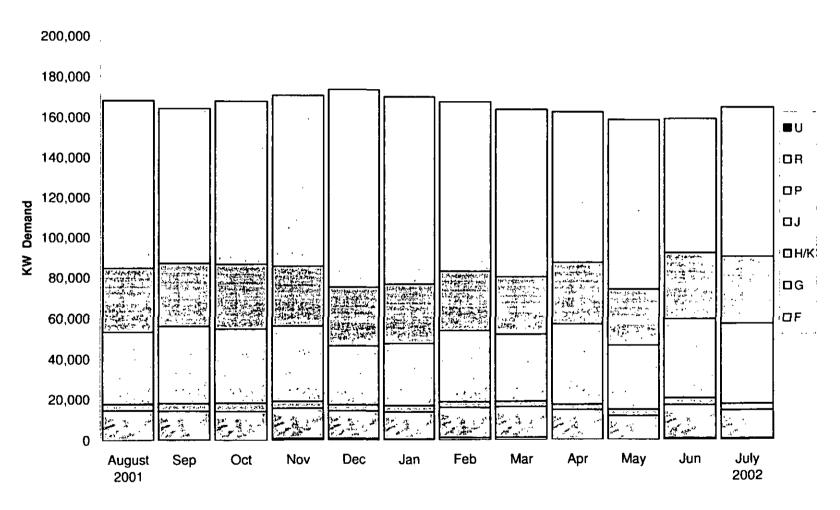


Exhibit 1.4

CLASS CONTRIBUTIONS TO THE MONTHLY DAY PEAKS

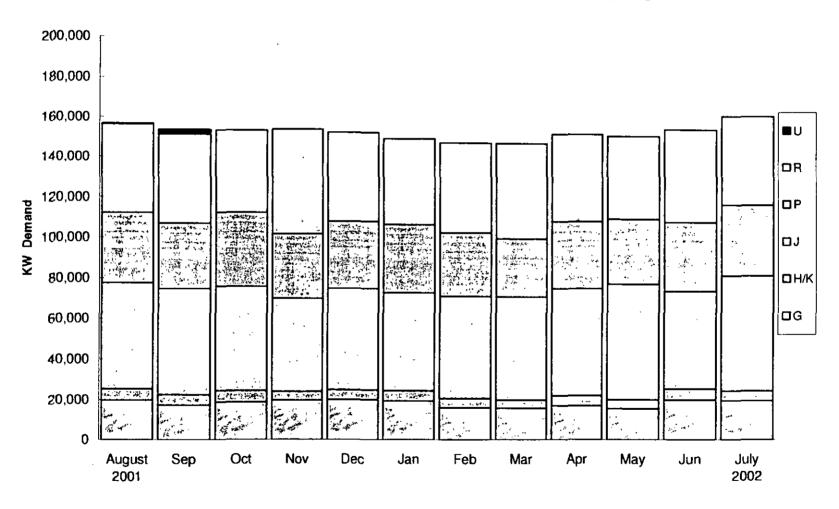


Table 1.4

OCCURRENCE OF THE TWELVE-MONTH CLASS PEAK DEMANDS

Rate	Peak Day	Day of the Week	Time-of-Use Period	During the Hour Ending at
F	June 1, 2002	Every Night	On-peak	
G	July 2, 2002	Tuesday	On-peak	Noon
H/K	July 30, 2002	Tuesday	On-peak	2:00 PM
J	August 24, 2001	Friday	On-peak	9:00 AM
P	July 1, 2002	Monday	On-peak .	1:00 PM
R	November 21, 2001	Wednesday	Priority peak	7:00 PM
U	October 1, 2001	Monday	Off-peak	6:00 AM
Total System	December 17, 2001	Monday	Priority peak	7:00 PM

	Time-of-Use Period [Definition:	
Priority Pe	ak: 5 pm - 9 pm	Monday through Friday	
On-peak:	7 am - 5 pm	Monday through Friday	
·	7 am - 9 pm	Saturday and Sunday	
Off-peak:	9 pm - 7 am	Daily	

The rate classes' peak days are derived from the study data.

Schedule F is constructed such that each day is an average day; June was its peak month.

The total system peak is the twelve-month net-to-system instantaneous system peak.

Table 1.5

SUMMARY OF THE TWELVE-MONTH LOAD FACTORS BY RATE CLASS

Rate Class	Load Factor	Total kWh 1	Class Peak kW ²
F: Street Light Service	37%	4,616,398	1,412
G: General Service Non-demand	52%	94,652,792	20,953
H/K: Commercial Cooking and Heating Service	50%	25,879,600	5,884
J: General Service Demand	54%	291,683,556	61,450
P: Large Power Service	77%	241,214,675	35,872
R: Residential Service	46%	405,455,485	100,096
U: Time-of-Use Service	13%	3,847,418	3,359
Total System: August 2001 through July 2002	70%	1,067,349,924 ³	174,100 4

Load factor (%) = $100 \times (\text{Total kWh}) / (\text{Peak Demand} \times 8,760 [\text{the number of hours in the year}])$

¹ The sample estimates of total kWh are at the net-to-system hourly generation level.

² The sample estimates of integrated 60-minute kW demand are also at the net-to-system generation level.

³ Recorded generation is at the net-to-system generation level for August 2001 - July 2002.

⁴ The recorded instantaneous demand peak demand of 174.1 MW is at the net-to-system generation level.

Table 1.6
RECORDED NUMBER OF CUSTOMERS BY RATE CLASS 1

Month	F	G	H/K	J	P	R	<u> </u>	Total
August 2001	106	8,954	368	1,232	61	54,066	3	64,790
September	106	8,990	357	1,253	61	54,253	3	65,023
October	107	9,002	362	1,254	62	54,340	3	65,130
November	108	8,999	364	1,261	61	54,438	3	65,234
December	108	9,009	362	1,246	60	54,453	3	65,241
January	109	8,993	362	1,272	62	54,706	3	65,507
February	107	8,946	359	1,273	62	54,760	3	65,510
March	97	8,975	358	1,253	61	54,833	3	65,580
April	97	9,069	358	1,280	61	55,041	3	65,909
May	87	9,049	357	1,294	61	55,058	3	65,909
June	101	9,040	354	1,278	61	54,987	3	65,824
July 2002	103	9,073	354	1,282	60	55,265	3	66,140
Average	103	9,008	360	1,265	61	54,683	3	65,483
Percent of Total	0.2%	13.8%	0.5%	1.9%	0.1%	83.5%	0.0%	100.0%

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

Table 1.7

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Schedule R: Residential Service

		BECORDED		CAMPLE DA	OFD FOTHATE	DIFFERENCE IN	
	-	RECORDED		_SAMPLE-BAS	SED ESTIMATE	TOTAL KW	<u>H</u>
	Total	No. of	Average	Average	Total		
Month	kWh 1	Customers	kWh	kWh	kWh ²	<u>kWh</u>	%_
August-01	31,101,001	54,066	575	594	32,104,120	1,003,119	3.2
September	29,219,688	54,253	539	561	30,422,662	1,202,974	4.1
October	30,154,611	54,340	555	576	31,307,802	1,153,191	3.8
November	30,383,707	54,438	558	573	31,190,552	806,845	2.7
December	32,420,830	54,453	595	5 6 7	30,856,143	-1,564,687	-4.8
January	33,241,488	54,706	608	571	31,238,098	-2,003,390	-6.0
February	28,991,701	54,760	529	534	29,226,148	234,447	0.8
March	31,851,404	54,833	581	597	32,745,763	894,359	2.8
April	30,598,687	55,041	556	544	29,917,497	-681,190	-2.2
May	30,996,454	55,058	563	572	31,484,503	488,049	1.6
June	30,193,197	54,987	549	534	29,371,891	-821,306	-2.7
July-02	32,514,740	55,265	588	574	31,728,446	-786,294	-2.4
Average	30,972,292	54,683	566	566	30,966,135	-6,157	0.0

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² The sample-based estimate is a mean-per-unit estimate.

Table 1.8

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Schedule G: General Service Non-demand

		RECORDED		SAMPLE-BAS	SED ESTIMATE	DIFFERENCE IN TOTAL KWH	
Month	Total kWh ¹	No. of Customers	Average kWh	Average kWh	Total kWh ²	kWh	%_
August-01	7,650,166	8,954	854	869	7,784,879	134,713	1.8
September	7,226,501	8,990	804	801	7,204,846	-21,655	-0.3
October	7,482,788	9,002	831	832	7,489,121	6,333	0.1
November	7,169,694	8,999	797	791	7,115,063	-54,631	-0.8
December	7,062,961	9,009	784	79 2	7,130,734	67,773	1.0
January	7,042,469	8,993	783	771	6,930,376	-112,093	-1.6
February	6,265,439	8,946	700	695	6,216,047	-49,392	-0.8
March	7,296,184	8,975	813	790	7,088,069	-208,115	-2.9
April	6,982,107	9,069	770	800	7,258,639	276,532	4.0
May	7,389,969	9,049	817	831	7,519,677	129,708	1.8
Jurie	7,475,451	9,040	827	820	7,414,862	-60,589	-0.8
July-02	7,721,555	9,073	851	841	7,629,967	-91,588	-1.2
Average	7,230,440	9,008	803	803	7,231,857	1,416	0.0

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² The sample-based estimate is a mean-per-unit estimate.

Table 1.9

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Schedule J: General Service Demand

		RECORDED		SAMPLE-BAS	SED ESTIMATE	DIFFERENCE IN TOTAL KWH	
Month	Total kWh ¹	No. of Customers	Average kWh	Average kWh	Total kWh ²	kWh	%
August-01	23,605,551	1,232	19,160	19,824	24,423,497	817,946	3.5
September	22,759,643	1,253	18,164	18,574	23,272,786	513,143	2.3
October	23,188,128	1,254	18,491	19,256	24,146,480	958,352	4.1
November	21,770,472	1,261	17,264	17,621	22,220,609	450,137	2.1
December	21,194,350	1,246	17,010	17,080	21,281,091	86,741	0.4
January	20,742,394	1,272	16,307	16,971	21,587,351	844,957	4.1
February	19,015,155	1,273	14,937	14,779	18,813,277	-201,878	-1.1
March	21,867,633	1,253	17,452	16,114	20,190,621	-1,677,012	-7.7
April	22,733,801	1,280	17,761	17,164	21,970,358	-763,443	-3.4
May	23,888,293	1,294	18,461	16,968	21,957,076	-1,931,217	-8.1
June	22,076,575	1,278	17,274	16,720	21,368,425	-708,150	-3.2
July-02	24,386,399	1,282	19,022	17,326	22,211,873	-2,174,526	-8.9
Average	22,269,033	1,265	17,609	17,366	21,953,620	-315,413	-1.4

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² The sample-based estimate is a mean-per-unit estimate.

Table 1.10

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Schedule H: Commercial Cooking and Heating Service

	•	RECORDED		SAMPLE-BAS	SED ESTIMATE	DIFFERENCE IN TOTAL KWH	
Month	Total kWh ¹	No. of Customers	Average kWh	Average kWh	Total kWh ²	kWh	%_
August-01	2,248,606	368	6,110	6,122	2,252,739	4,133	0.2
September	2,113,417	357	5,920	5,659	2,020,438	-92,979	-4.4
October	2,128,793	362	5,881	5,877	2,127,446	-1,347	-0.1
November	1,969,488	364	5,411	5,451	1,984,194	14,706	0.7
December	1,923,212	362	5,313	5,188	1,877,973	-45,239	-2.4
January	1,835,456	362	5,070	5,164	1,869,518	34,062	1.9
February	1,624,853	359	4,526	4,388	1,575,352	-49,501	-3.0
March	1,815,688	358	5,072	5,167	1,849,755	34,067	1.9
April	1,935,176	358	5,406	5,359	1,918,466	-16,710	-0.9
May	1,998,271	357	5,597	5,665	2,022,473	24,202	1.2
June	2,063,387	354	5,829	5,559	1,967,971	-95,416	-4.6
July-02	2,089,903	354	5,904	6,015	2,129,455	39,552	1.9
Average	1,978,854	360	5,503	5,468	1,966,315	-12,539	-0.6

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² The sample-based estimate is a mean-per-unit estimate.

Table 1.11

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Schedule P: Large Power Service

		RECORDED		SAMPLE-BAS	SED ESTIMATE	DIFFERENCE IN TOTAL KWH	
Month	Total kWh ¹	No. of Customers	Average kWh	Average kWh	Total kWh ²	kWh	%
August-01	19,887,837	61	326,030	322,868	19,694,965	-192,872	-1.0
September	18,512,314	61	303,481	298,782	18,225,698	-286,616	-1.5
October	18,632,020	62	300,516	306,938	19,030,164	398,144	2.1
November	17,553,765	61	287,767	291,335	17,771,458	217,693	1.2
December	17,937,388	60	298,956	296,726	17,803,573	-133,815	-0.7
January	18,000,536	62	290,331	297,552	18,448,237	447,701	2.5
February	16,351,247	62	263,730	259,641	16,097,738	-253,509	-1.6
March	17,630,985	61	289,033	297,280	18,134,099	503,114	2.9
April	18,385,161	61	301,396	296,823	18,106,183	-278,978	-1.5
May	18,614,685	61	305,159	302,976	18,481,516	-133,169	-0.7
June	18,015,560	61	295,337	306,711	18,709,398	693,838	3.9
July-02	20,736,442	60	345,607	324,864	19,491,822	-1,244,620	-6.0
Average	18,354,828	61	300,612	300,208	18,332,904	-21,924	-0.1

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² The sample-based estimate is a mean-per-unit estimate.

Table 1.12

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Schedule U: Time-of-Use Service

		RECORDED		SAMPLE-BAS	ED ESTIMATE	DIFFERENCE IN TOTAL KWH	
Month	Total kWh 1	No. of Customers	Average kWh	Average kWh	Total kWh ²	kWh	%
August-01	351,530	3	117,177	108,117	324,350	-27,180	-7.7
September	436,256	3	145,419	121,890	365,669	-70,587	-16.2
October	282,100	3	94,033	100,379	301,136	19,036	6.7
November	242,755	3	80,918	85,253	255,759	13,004	5.4
December	253,322	3	84,441	93,901	281,702	28,380	11.2
January	314,118	3	104,706	94,621	283,863	-30,255	-9.6
February	240,599	3	80,200	80,622	241,867	1,268	0.5
March	288,576	3	96,192	93,569	280,706	-7,870	-2.7
Aprif	299,128	3	99,709	96,113	288,340	-10,788	-3.6
May	264,251	3	88,084	79,972	239,916	-24,335	-9.2
June	205,483	3	68,494	77,231	231,693	26,210	12.8
July-02	264,454	3	88,151	94,587	283,761	19,307	7.3
Average	286,881	3	95,627	93,855	281,564	-5,317	-1.9

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

Load data was gathered from all three Schedule U accounts. The monthly kWh from the load data differs widely from the billing data because the load data is based on the calendar month, and billing dates vary within the month by customer.

Table 1.13

RECORDED KWH vs SAMPLE-BASED ESTIMATE OF KWH AT THE SALES LEVEL

Total System

		RECORDED		SAMPLE-BA	SED ESTIMATE	DIFFERENCE IN TOTAL KWH	
Month	Total kWh ¹	No. of Customers	Average kWh	Average kWh	Total kWh ²	kWh	%_
August-01	85,193,751	64,790	1,315	1,342	86,933,609	1,739,858	2.0
September	80,606,191	65,023	1,240	1,259	81,850,470	1,244,279	1.5
October	82,198,725	65,130	1,262	1,301	84,732,434	2,533,709	3.1
November	79,433,331	65,234	1,218	1,240	80,881,085	1,447,754	1.8
December	81,156,074	65,241	1,244	1,220	79,595,228	-1,560,846	-1.9
January	81,520,134	65,507	1,244	1,232	80,701,117	-819,017	-1.0
February	72,811,196	65,510	1,111	1,107	72,492,631	-318,565	-0.4
March	81,113,482	65,580	1,237	1,230	80,652,025	-461,457	-0.6
April	81,254,524	65,909	1,233	1,210	79,779,946	-1,474,578	-1.8
May	83,507,811	65,909	1,267	1,245	82,061,049	-1,446,762	-1.7
June	80,383,747	65,824	1,221	1,207	79,418,334	-965,413	-1.2
July-02	88,045,705	66,140	1,331	1,267	83,807,536	-4,238,169	-4.8
Average	81,435,389	65,483	1,244	1,238	81,075,455	-359,934	-0.4

¹ Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HELCO Accounting Department).

² The sample-based estimate is a mean-per-unit estimate.

Table 1.14

TOTAL SYSTEM KWH BY TIME-OF-USE AT THE SALES LEVEL 1

	Priority Pe	ak	On-Peak	K	Off-Peak			% of Total
Rate_	kWh	%	kWh	%	kWh	%	Total_kWh	System
F	541,753	0.4%	261,051	0.0%	3,313,919	1.1%	4,116,723	0.4%
G	11,655,348	8.5%	51,747,175	9.8%	23,362,761	7.4%	86,765,284	8.9%
H/K	2,826,875	2.1%	14,856,539	2.8%	6,062,836	1.9%	23,746,250	2.4%
J	30,861,575	22.5%	152,732,806	29.0%	83,634,013	26.6%	267,228,394	27.3%
Р	26,785,295	19.5%	113,713,784	21.6%	79,758,861	25.4%	220,257,940	22.5%
R	64,409,540	47.0%	192,666,688	36.6%	114,591,280	36.5%	371,667,508	38.0%
U	23,694	0.0%	277,762	0.1%	3,141,115	1.0%	3,442,572	0.4%
Total	137,104,080	100.0%	526,255,806	100.0%	313,864,786	100.0%	977,224,671	100.0%

Time-of-Use Period Definition:							
 Priority Peak: 5 pm - 9 pm	Monday through Friday						
On-peak: 7 am - 5 pm	Monday through Friday						
7 am - 9 pm	Saturday and Sunday						
Off-peak: 9 pm - 7 am	Daily						

¹ Normalized sample estimates.

2. SAMPLE DESIGN

From August 2001 through July 2002, HELCO meter readers collected data from 485 accounts among rate schedules E, G, H/K, J, R, P and U. Rate E, Electric Service for Employees, is combined with Rate R in the analysis. Rate H/K, Commercial Cooking and Heating Service, includes customers with demand based on inspected loads (Schedule H) and customers with measured demand (Schedule K). The sample included both H and K accounts.

Rates E, G, H/K, J, and R were sampled; Rate R was stratified by water heating fuel. All accounts in rates P and U were included in the study, but one Rate P customer did not begin service until March 2002. The load data for Schedule F was manually constructed using data on the time of sunset and sunrise at Hilo to determine the on and off times of public street lights. Here is a summary of the population sampled and the number of accounts metered by rate class.

Table 2.1
POPULATION AND SAMPLE SIZE BY RATE CLASS

	Average	Average	0
	Number of	Sample	Sampling
Rate Class	Customers	Size	Proportion
F	103	Not sampled	
G	9,008	116	1.3%
H/K	360	52	14.5%
J	1,265	112	8.9%
P	61	60	98.2%
R	54,683	141	0.3%
U	3	3	100.0%
Total	65,483	484	0.7%

The actual sample size varied slightly from the total number of accounts metered, because some accounts had to be replaced with alternates, due to accounts closing or transferring to a different rate and to locations becoming vacant.

The sampling design was based on probability sampling, using stratified random sampling to obtain a statistically representative sample. Except for Schedules F, P, and U, each rate class was divided into non-overlapping subgroups called strata, based on the customers' recorded kWh usage or kW demand for the 12-month period from January 2000 to December 2000. The population sampled included all active accounts as of December 2000 whose average kWh usage or average kW demand for the sampling period was not zero.

With one exception, in each stratum accounts were chosen at random for participation in the study. The exception was the Rate J stratum with average demand 200 kW or higher; all accounts in that stratum were included in the study.

It would have been ideal to use kW demand as the stratification variable for all customers; kW data, however, was not available for the residential or non-demand commercial customers. For these customers, kWh was used instead, since kW and kWh are correlated.

The determination of the strata boundaries was based on the Dalenius-Hodges technique, described below. The sample size was determined by both the sampling method used and the desired precision level. In 1978 PURPA set a minimum standard of precision of $\pm 10\%$ at the 90% confidence level for all major rate classes. The sample sizes for this study for Schedules E, G, H/K, J and R were based on $\pm 5\%$ precision at the 95% confidence level. This means that, if the study were conducted 100 times, in 95 studies the true value of the population parameter would fall within $\pm 5\%$ of the sample estimate. The allocation of the sample by strata is based on the Neyman Optimum Allocation Method, also described below.

The total sample size for each rate class was increased by an additional 10% to allow for customers' refusing to participate or dropping out during the collection phase, for outages and/or meter problems, and for accounts transferring to a different rate during the study period.

Tables 2.2 through 2.8 show how the number of accounts to be sampled within each stratum was computed for Schedules E, G, H/K, J and R. Rate R consists of three tables, one for electric resistance water heating, one for solar water heating and one for neither electric nor solar water heating.

Because load patterns and load levels can vary significantly between business types, the selected sample should adequately represent the composition of the commercial rate classes.

Tables 2.9 through 2.11 compare the percentage of accounts in each business group in the population and in the sample for Schedules G, H/K and J.

Using an arbitrary criterion of $\pm 5\%$, among the sample accounts in Schedule G construction accounts are underrepresented, while office buildings are overrepresented.

Among the accounts in Schedule H/K, the sample percentage and the population percentage do not differ by more than 5% for any business group.

In the Schedule J sample, educational facilities, other (non-agricultural) pumping loads and water supply/wastewater management are overrepresented, while communications, restaurants and services are underrepresented.

Due to the small numbers of sample accounts in the each business group, however, none of the aforementioned differences are statistically significant.

Table 2.12 shows the precision of the sample design for the study period of August 2001 through July 2002. All but one of the sampled rate classes were within $\pm 1\%$ of the population's average kWh over the entire twelve months of the study period. The exception, Rate J, was 1.4% lower than the estimated population average.

Here are descriptions of the terms used on page 7:

Precision

Precision measures the variability of the sample estimate around the population mean. Relative precision defines this variability in terms of a percentage of the population mean (in this study, \pm 5%). The calculation is shown at the bottom of Tables 2.2 through 2.15.

Confidence Level

The confidence level is the probability that the precision interval in the sample, $\pm 5\%$, contains the true population value. It is expressed as a percent (in this study, $\pm 95\%$).

Dalenius-Hodges Procedure

For each schedule, the Dalenius-Hodges procedure divides the population into many small intervals of average monthly kW or kWh, depending on the schedule (e.g., 0-5 kW, 5-10 kW, 11-15 kW, etc.). The length of each interval is called u. The total number of customers in each interval is counted; this number is called f (for frequency). The quantity \sqrt{uf} is summed over all the intervals. The sum of \sqrt{uf} is divided by the desired number of strata to give the optimum length of each stratum.

Neyman Optimum Allocation Method

Neyman allocation distributes the sample across the strata according to the percentage of the total population standard deviation found in each stratum, weighted by the proportion of the population which falls into that stratum. This method optimizes the allocation for a fixed sample size. (The general form of the equation appears at the bottom of Tables 2.2 through 2.8.)

STRATIFICATION OF SCHEDULE E: ELECTRIC SERVICE FOR EMPLOYEES

Determination of Sample Size Stratified Sampling Design

Schedule E: Electric Service for Employees

For a Confidence Level of 95% and Precision Level of 5%

Strata Avg KWh	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)	w(i)*s(i)2	w(i)*s(i)	w(i)*s(i)/ Σ[w(i)*s(i)]	Adjusted Sample Size *
0 - 400	57	0.129	321.2	71.9	667.0	9.3	0.147	3
401 - 550	91	0.206	484.0	44.8	412.8	9.2	0.146	2
551 - 700	102	0.231	625.1	40.6	380.4	9.4	0.149	2
701 - 900	97	0.220	791.9	56.3	694.9	12.4	0.196	3
901 - 1150	67	0.152	1,013.4	69.7	736.6	10.6	0.167	2
1150 <	28	0.063	1,378.8	194.7	2,400.6	12.3	0.195	3
TOTAL	442	1.000	700.1	284.1	5,292,3	63.1	1.000	15

* Includes 10% oversampling. Unadjusted sample size = 12.

Desired minimum variance $V = (p\mu\hbar)^2$

= {0.05 x 700.1/1.96}²

= [0.05 x 700.1/1.96] = 318.9 where p = precision level

 $\mu = \text{total population mean}$

t = normal critical value associated with specified confidence level

Total sample size n = { Σ[w(i)*s(i)] }²

 $V + \{ 1/N * \Sigma[w(i)*s(i)^2] \}$

= (63.1)² 318.9 + {1/442 x 5292.3} where w(i) ≈ stratum weight

s(i) = ith stratum standard deviation

V = desired minimum variance
 N = number of customers in total population

12 (unadjusted sample size)

= 13 (includes 10% oversampling)

For each stratum, n(i) = w(i)*s(i) where n = sample size $\Sigma[w(i)^*s(i)]$ n(1) =13 0.147 3 n(2) = 13 0.146 n(3) =13 0.149 2 n(4) = 13 0.196 3 n(5) = 13 0.167 2 n(6) = 13 0.195

STRATIFICATION OF SCHEDULE G: GENERAL SERVICE Non-demand

Determination of Sample Size Stratified Sampling Design

Schedule G: General Service (non-demand)

For a Confidence Level of 95% and Precision Level of 5%

Strata Avg KWH	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)	w(i)*s(i)2	_w(i)*s(i)_	w(i)*s(i) / Σ[w(i)*s(i)]	Adjusted Sample Size*
0 - 250	4,598	0.432	94.0	80.2	2,778.0	34.6	0.184	21
251 - 650	2,522	0.237	416.4	114.5	3,102.4	27.1	0.144	16
651 - 1300	1,643	0.154	930.7	188.2	5,462.2	29.0	0.154	17
1301 - 2250	1,007	0.095	1,706.8	270.1	6,894.5	25.5	0.135	15
2251 - 3700	665	0.062	2,879.8	409.6	10,471.2	25.6	0.136	15
3700 <	220	0.021	4,624.0	2,268.4	105,996.2	46.7	0.248	28
	10.655	1.000	719.2	1 015 0	134.704.6	188.6	1.000	112

^{*} Includes 10% oversampling, with rounding up. Unadjusted sample size = 102.

Desired minimum variance $V = \{p\mu\hbar\}^2$

= {0.05 x 719.2/1.96}

= 336.6

where p = precision level

where w(i) = stratum weight

 μ = total population mean

t = normal critical value associated with specified confidence level

s(i) = ith stratum standard deviation V = desired minimum variance

N = number of customers in total population

 $\{\Sigma[w(i)^*s(i)]\}^2$ Total sample size n = $V + \{ 1/N * \Sigma[w(i)*s(i)^2] \}$

> $(188.6)^2$ 336.57 + {1/10655 x 134704.6}

112

102 (unadjusted sample size) (includes 10% oversampling)

For each stratum, r	n(i) =	n	-	w(i)*s(i) E[w(i)*s(i)]	where n = sample size
n	n(1) = =	112 21	×	0.184	
ń	n(2) = =	112 16	×	0.144	
n	n(3) ==	112 17	×	0.154	
п	n(4) =	112 15	x	0.135	
r	n(5) = =	112 15	×	0.136	
п	n(6) = =	112 28	x	0.248	

STRATIFICATION OF SCHEDULES H AND K: COMMERCIAL COOKING AND HEATING SERVICE

Determination of Sample Size Stratified Sampling Design

Schedules H and K: Commercial Cooking and Heating Service For a Confidence Level of 95% and Precision Level of 5%

Strata Avg KWh	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)	w(i)*s(i)*	_w(i)*s(i)_	w(i)*s(i) / _Σ[w(i)*s(i)]_	Adjusted Sample Size
0 - 1650	150	0.377	706.1	466.8	82,140	176.0	0.153	8
1651 - 4200	90	0.226	2,863.1	777.2	136,573	175.7	0.153	8
4201 - 8350	67	0.168	5,816.2	1,222.9	251,708	205.8	0.179	10
8351 - 13300	49	0.123	10,549.8	1,435.0	253,490	176.6	0.154	8
13301 - 23750	26	0.065	17,958.0	2,870.7	538,137	187.5	0.163	9
23750 <	16	0.040	30,074.4	5,693.6	1,303,175	228.9	0.199	11
	398	1.000	5.573.7	7.097.9	2.565.223	1150.5	1.000	54

^{*} Includes 10% oversampling. Unadjusted sample size = 50.

Desired minimum variance V

 $= \{p\mu/t\}^2$

= 20,216.61

= [0.05 x 5573.7/1.96]²

where p = precision level

where w(i) = stratum weight

 μ = total population mean

t = normal critical value associated with specified confidence level

s(i) = ith stratum standard deviationV = desired minimum variance

N = number of customers in total population

Total sample size n

$$\{\Sigma[w(i)^*s(i)]\}^2$$

V + $\{1/N^*\Sigma[w(i)^*s(i)^2]\}$

 $(1150.5)^2$

20216.61 + {1/398 x 2565222.5}

50 (unadjusted sample size)

55 (includes 10% oversampling)

For each stratum, n(i) =	n	•	w(i)*s(i) Σ[w(i)*s(i)]	where n = sample size
n(1) z	_	x	0.153	
n(2) =	= 55 = 8	×	0.153	
n(3) :	= 55 = 10	×	0.179	
n(4) =	= 55 = 8	×	0.154	
n(5) =	= 55 = 9	×	0.163	
n(6) =		x	0.199	

STRATIFICATION OF SCHEDULE J: GENERAL SERVICE Demand

Determination of Sample Size Stratified Sampling Design

Schedule J: General Service (demand < 200 kW)

For a Confidence Level of 95% and Precision Level of 5%

Strata 1 Avg Mdm	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)	w(i)*s(i)*	_w(i)*s(i)	w(i)*s(i) / Σ[w(i)*s(i)]	Adjusted Sample Size *
0 - 20	349	0.279	14.3	4.4	5.3	1.2	0.184	7
21 - 30	304	0.243	24.4	2.8	2.0	0.7	0.104	4
31 - 50	266	0.213	38.9	5.7	7.0	1.2	0.184	7
51 - 80	163	0.130	63.3	8.8	10.2	1.2	0.174	6
81 - 130	95	0.076	100.7	14.2	15.3	1.1	0.163	6
130 - 200 _	73	0.058	159.6	21.7	27.5	1.3	0.191	7
	1,250	1.000	43.4	38.6	67.3	6.6	1.000	37

¹ Left unchanged from 1993-94; 2000 column stratum boundaries were within 1 or 2 kW.

* Includes 10% oversampling. Unadjusted sample size = 34.

Desired minimum variance V = $\{p_{\mu}/t\}^2$ = $\{0.05 \times 43.4/1.96\}^2$ = 1.23 where p = precision level $\mu = total$ population mean

t = normal critical value associated with specified confidence level

Total sample size n = $\frac{ \left\{ \sum [w(i)^*s(i)] \right\}^2 }{ V + \left\{ \frac{1}{N} \cdot \sum [w(i)^*s(i)^2] \right\} }$

where w(i) = stratum weight s(i) = ith stratum standard deviation

V = desired minimum variance

= (6.6)² 1.23 + {1/1250 × 67.3} N = number of customers in total population

= 34 (unadjusted sample size)

= 37 (includes 10% oversampling)

For each stratum,
$$n(i) = n$$
 $w(i)^*s(i)$ where $n =$ sample size $\frac{w(i)^*s(i)}{\Sigma(w(i)^*s(i))}$ and $\frac{w(i)^*s(i)}{\Sigma(w$

STRATIFICATION OF SCHEDULE R: RESIDENTIAL SERVICE WITH ELECTRIC WATER HEATING

Determination of Sample Size Stratified Sampling Design

Schedule R: Residential Service with Electric Water Heating For a Confidence Level of 95% and Precision Level of 5%

Strata Avg KWh	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)	w(i)*s(i)*	_w(i)*s(i)	w(i)*s(i)/ Σ[w(i)*s(i)]	Adjusted Sample Size
0 - 250	174	0.128	160.8	69.3	614.9	8.9	0.096	4
251 - 450	374	0.275	351.4	58.0	924.6	15.9	0.173	7
451 - 650	364	0.268	545.3	56.5	855.4	15.1	0.164	6
651 - 900	267	0.196	764.1	75.4	1,116.8	14.8	0.161	6
901 - 1450	154	0.113	1,095.2	154.3	2,694.2	17.5	0.190	7
_1450 <	27	0.020	2,195.7	1,000.7	19,928.6	19.9	0.216	8
TOTAL	1,360	1.000	580.8	388.8	26,134.6	92.1	1.000	38

* Includes 10% oversampling. Unadjusted sample size = 35.

Desired minimum variance $V = \{p\mu/t\}^2$

 $= (0.05 \times 580.8/1.96)^2$

= 221.8

where p ≈ precision level

where w(i) = stratum weight

 $\mu = \text{total population mean}$

t = normal critical value associated with specified confidence level

Total sample size n = { Σ[w(i)*

 $\frac{\{ \sum [w(i)^*s(i)] \}^2}{V + \{ 1/N * \sum [w(i)^*s(i)^2] \}}$

= (92.1)² 221.8 + (1/1360 x 26134.6)

= 35 (unadjusted sample size)

= 39 (includes 10% oversampling)

s(i) = ith stratum standard deviation

V = desired minimum variance

N = number of customers in total population

For each stratum, n(i) =	n	•	w(i)*s(i) Σ(w(i)*s(i)]	where n = sample size
n(1) = =	39 4	x	0.096	
n(2) = =	39 7	x	0.173	
n(3) = =	39 6	x	0.164	
n(4) =	39 6	×	0.161	
n(5) =	39 7	x	0.190	
n(6) ≈	39	×	0.216	

STRATIFICATION OF SCHEDULE R: RESIDENTIAL SERVICE WITH NEITHER ELECTRIC NOR SOLAR WATER HEATING

Determination of Sample Size Stratified Sampling Design

Schedule R: Residential Service with Neither Electric nor Solar Water Heating For a Confidence Level of 95% and Precision Level of 5%

Strata Avg KWh	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)	w(i)*s(i)*	w(i)*s(i)	w(i)*s(i)/ Σ[w(i)*s(i)]	Adjusted Sample Size
0 - 150	41	0.123	102.6	40.1	198.3	4.9	0.084	3
151 - 250	83	0.249	202.5	27.7	191.5	6.9	0.117	4
251 - 400	101	0.303	310.8	42.3	543.0	12.8	0.218	7
401 - 650	64	0.192	517.6	75.8	1,103.8	14.6	0.247	8
651 - 9 00	32	0.096	748.7	64.1	394.8	6.2	0.105	3
900 <	12	0.036	_1,281.3	375.4	5,074.2	1 <u>3.5</u>	0.229	8
TOTAL	333	1.000	375.0	268.3	7,505.6	58.9	1.000	33

* Includes 10% oversampling. Unadjusted sample size = 30.

N = number of customers in total population

Desired minimum variance $V = \{p\mu/t\}^2$

= [0.05 x 375.0/1.95]²

= 92.5

where p = precision level

where w(i) = stratum weight

 μ = total population mean

t = normal critical value associated with specified confidence level

s(i) = ith stratum standard deviation V = desired minimum variance

Total sample size $n = {\{\Sigma[w(i)^*s(i)]\}^2}$

V + { 1/N * Σ[w(i)*s(i)²] }

(58.9)² 92.5 + {1/333 × 7505.6}

= 30 (unadjusted sample size)

= 33 (includes 10% oversampling)

where n = sample size For each stratum, n(i) = w(i)*s(i) $\Sigma[w(i)^*s(i)]$ n(1) =33 0.084 n(2) =33 0.117 n(3) =33 0.218 7 n(4) =33 0.247 8 n(5) = 33 0.105 3 0.229 n(6) =33

STRATIFICATION OF SCHEDULE R: RESIDENTIAL SERVICE WITH SOLAR WATER HEATING

Determination of Sample Size Stratified Sampling Design

Schedule R: Residential Service with Solar Water Heating For a Confidence Level of 95% and Precision Level of 5%

Strata Avg KWh	Population N(i)	Stratum Weight w(i)=N(i)/N	Population Mean m(i)	Standard Deviation s(i)		w(i)*s(i)	w(i)*s(i)/ Σ[w(i)*s(i)]	Adjusted Sample Size *
0 - 300	217	0.126	206.3	81.6	837.5	10.3	0.110	4
301 - 500	548	0.317	407.1	56.3	1.006.9	17.9	0.191	7
501 - 650	366	0.212	573.3	42.5	382.4	9.0	0.096	4
651 - 950	398	0.231	769.0	81.6	1,535.6	18.8	0.201	7
951 - 1550	164	0.095	1,160.3	150.7	2.157.6	14.3	0.153	6
1550 <	34	0.020	2,213.7	1,184.0	27,616.6	23.3	0.249	9
TOTAL	1,727	1.000	607.6	389.6	33,536.6	93.6	1.000	37

* Includes 10% oversampling. Unadjusted sample size = 34.

Desired minimum variance V = {pµ/t}²

= [0.05 x 607.6/1.96]²

= 240.3

where p = precision level

 μ = total population mean

t = normal critical value associated with specified confidence level

Total sample size n = $\frac{\{\Sigma[w(i)^*s(i)]\}^2}{V + \{1/N * \Sigma[w(i)^*s(i)^2]\}}$

= (93.6)2

where w(i) = stratum weight

s(i) = ith stratum standard deviation

V = desired minimum variance
 N = number of customers in total population

240.3 + {1/1727 x 33536.6}

34 (unadjusted sample size)

37 (includes 10% oversampling)

For each stratum, n(i) = w(i)*s(i) where n = sample size $\Sigma[w(i)^*s(i)]$ n(1) = 37 0.110 n(2) = 37 0.191 7 37 n(3) =0.096 n(4) =37 0.201 37 ດ(5) ≈ 0.153 n(6) = 37 0.249

Table 2.9
SCHEDULE G ACCOUNTS BY TYPE OF BUSINESS
TOTAL SCHEDULE vs SAMPLE

Business Group	Total Schedule	Sample
Agricultural Dumping	0.00/	0.00/
Agricultural Pumping	0.0%	0.0%
Air Transportation Facilities	0.3%	0.0%
Amusement	2.9%	8.7%
Cold Storage	0.3%	0.0%
Communications	4.1%	2.6%
Construction	30.3%	11.3%
Educational Facilities	4.0%	4.3%
Farming	2.6%	1.7%
Food Product Processors	0.8%	0.9%
Groceries	0.9%	0.9%
Health Facilities	1.0%	1.7%
Hotels	0.4%	1.7%
Housing	5.7%	6.1%
Manufacturing	0.7%	0.0%
Military Bases	0.2%	0.0%
Office Buildings	14.1%	22.6%
Other Pumping	1.1%	2.6%
Restaurants	2.4%	6.1%
Retail - Non-Food	10.1%	10.4%
Services	13.2%	15.7%
Street Lighting	1.8%	0.9%
Water Supply/Wastewater Mgmnt.	0.6%	0.9%
Wholesale	2.0%	0.9%
Other/None	0.8%	0.0%
Total	100.0%	100.0%

Table 2.10
SCHEDULES H AND K ACCOUNTS BY TYPE OF BUSINESS
TOTAL SCHEDULE vs SAMPLE

Business Group	Total Schedule	Sample
Agricultural Pumping	0.0%	0.0%
Air Transportation Facilities	0.3%	0.0%
Amusement	2.9%	3.8%
Cold Storage	2.6%	1.9%
Communications	1.0%	1.9%
Construction	0.0%	0.0%
Educational Facilities	6.8%	3.8%
Farming	3.5%	0.0%
Food Product Processors	2.6%	5.8%
Groceries	3.9%	1.9%
Health Facilities	2.6%	5.8%
Hotels	2.6%	0.0%
Housing	6.8%	7.7%
Manufacturing	0.6%	0.0%
Military Bases	0.0%	0.0%
Office Buildings	16.1%	15.4%
Other Pumping	0.0%	0.0%
Restaurants	18.3%	23.1%
Retail - Non-Food	17.4%	13.5%
Services	8.7%	7.7%
Street Lighting	0.0%	0.0%
Water Supply/Wastewater Mgmnt.	0.0%	0.0%
Wholesale	3.5%	7.7%
Other/None	0.0%	0.0%
Total	100.0%	100.0%

Table 2.11
SCHEDULE J ACCOUNTS BY TYPE OF BUSINESS
TOTAL SCHEDULE vs SAMPLE

	Total	
Business Group	Schedule	Sample
Aprioultural Dumping	0.59/	0.00/
Agricultural Pumping	0.5%	0.0%
Air Transportation Facilities	0.6%	0.0%
Amusement	7.1%	4.9%
Cold Storage	0.3%	0.0%
Communications	5.5%	1.2%
Construction	0.3%	0.0%
Educational Facilities	6.6%	17.3%
Farming	2.1%	0.0%
Food Product Processors	2.7%	6.2%
Groceries	3.8%	1.2%
Health Facilities	2.7%	2.5%
Hotels	1.2%	1.2%
Housing	5.1%	1.2%
Manufacturing	1.1%	2.5%
Military Bases	0.3%	1.2%
Office Buildings	7.8%	3.7%
Other Pumping	4.9%	18.5%
Restaurants	12.5%	2.5%
Retail - Non-Food	17.3%	14.8%
Services	8.4%	2.5%
Street Lighting	0.0%	0.0%
Water Supply/Wastewater Mgmnt.	5.7%	17.3%
Wholesale	3.1%	1.2%
Other/None	0.3%	0.0%
Total	100.0%	100.0%

Table 2.12
SAMPLE PRECISION
Population and Sample Statistics by Rate and Month

	G_			H/K		J			
	Averag	e kWh	Difference	Average	e kWh	Difference	Average	kWh .	Difference
<u>Month</u>	Recorded	Sample	%	Recorded	Sample	%	Recorded	Sample	%
									<u> </u>
August-01	854	869	1.8%	6,110	6,122	0.2%	19,160	19,824	3.5%
September	804	801	-0.3%	5,920	5,659	-4.4%	18,164	18,574	2.3%
October	831	832	0.1%	5,881	5,877	-0.1%	18,491	19,256	4.1%
November	797	791	-0.B%	5,411	5,451	0.7%	17,264	17,621	2.1%
December	784	792	1.0%	5,313	5,188	-2.4%	17,010	17,080	0.4%
January	783	771	-1.6%	5,070	5,164	1.9%	16,307	16,971	4.1%
February	700	695	-0.8%	4,526	4,388	-3.0%	14,937	14,779	-1.1%
March	813	790	-2.9%	5,072	5,167	1.9%	17,452	16,114	-7.7%
April .	770	800	4.0%	5,406	5,359	-0.9%	17,761	17,164	-3.4%
May	817	831	1.8%	5,597	5,665	1.2%	18,461	16,968	-8.1%
June	827	820	-0.8%	5,829	5,559	-4.6%	17,274	16,720	-3.2%
July-02	851	841	-1.2%	5,904	6,015	1.9%	19,022	17,32 6	-8.9%
Average	803	803	0.0%	5,503	5,468	-0.6%	17,609	17,366	-1.4%
		_			_				1
		P			R (includes E			TAL SYST	
5.0 m h	Averag Recorded		Difference	Averag		Difference	Total		Difference
<u>Month</u>	Hecorded	Sample	%	Recorded	Sample	%	Recorded	Sample	%
August-01	326,030	322,868	-1.0%	576	594	3.2%	1,305	1.332	2.1%
September	303,481	298,782	-1.5%	540	561	4.0%	1,229	1,249	1.6%
October	300,516	306,938	2.1%	556	577	3.8%	1,254	1.292	3.1%
November	287,767	291,335	1.2%	55 9	574	2.7%	1,210	1,232	1.8%
December	298,956	296,726	-0.7%	597	568	-4.8%	1,236	1,211	-2.0%
January	290,331	297,552	2.5%	609	572	-6.0%	1,235	1,223	-1.0%
February			_,_,			-0.00			
44	263,730	259,641	-1.6%	530	535	0.8%	1,104	1,099	-0.4%
March	263,730 289,033	•					1,104 1,228		-0.4% -0.6%
March April		259,641	-1.6%	530	535	0.8%		1,099	
	289,033	259,641 297,280	-1.6% 2.9%	530 582	535 5 98	0.8% 2.8%	1,228	1,099 1,221	-0.6%
April	289,033 301,396	259,641 297,280 296,823	-1.6% 2.9% -1.5%	530 582 557	535 598 545	0.8% 2.8% -2.2%	1,228 1,224	1,099 1,221 1,202	-0.6% -1.8%
April May	289,033 301,396 305,159	259,641 297,280 296,823 302,976	-1.6% 2.9% -1.5% -0.7%	530 582 557 564	535 598 545 573	0.8% 2.8% -2.2% 1.6%	1,228 1,224 1,259	1,099 1,221 1,202 1,237	-0.6% -1.8% -1.7%

Recorded data from "HELCO KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (HECO Accounting Department).

1 Does not include Rate U

Note: The three accounts on Schedule U, Time-of-Use, are not in Table 2.12 because data from all three were used in the study.

3. DATA COLLECTION, ANALYSIS AND EXPANSION

A. DATA COLLECTION

Installation of meters and recorders in the field began in February 2001 and ended in May 2001. The type of meter used at a location was determined by the customer's size and type of service.

Most of the collection of 15-minute interval pulse data was done using ITRON handheld devices; meters at some of the large accounts were interrogated directly over telephone lines. The data was downloaded to a PC and translated using MererMate, PC-Map and MV-90 software. It was then edited, validated and analyzed. The analysis period of August 2001 to July 2002 was chosen after sufficient meters had been tested. Exhibit 3.1 depicts the load research procedure.

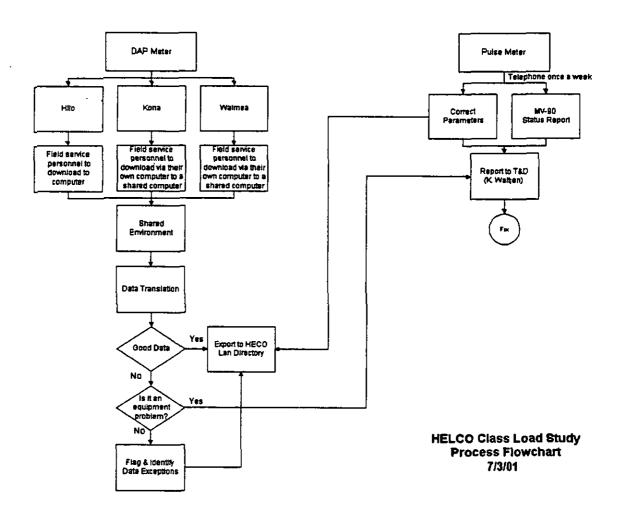
B. DATA VALIDATION

Two checks were performed to ensure that the data collected appeared reasonable. The first was a comparison of the summation of translated kilowatt-hours and elapsed time derived from the meter pulses to that in the meter registers. The second compared the derived kWh/day with that shown in HELCO's customer billing system, which was collected independently over approximately the same time frame. Close communication was maintained with Meter Reading and Customer Service through regular status meetings.

C. DATA EDITING

Because of its experience in filling gaps in load data, data editing was entrusted to RLW Analytics, Inc., a California consultant specializing in load research. Using their proprietary software, Visualize-IT, RLW Analytics, Inc. fit the missing kWh under typical load shapes obtained from similar days of the week in 2001-2002, while matching the recorded monthly maximum demand, if available from the billing system.

Exhibit 3.1
THE LOAD RESEARCH PROCEDURE



D. DATA ANALYSIS AND EXTRAPOLATION

SAS programs written by RLW Analytics, Inc. and by an analyst at Hawaiian Electric Co., Inc. were used to analyze the data. After validation and edits, the 15-minute kW data for each sample account was aggregated into 60-minute integrated demand for each hour of the year and assigned a caseweight, based on the ratio of the the average number of customers in the population who fell within each stratum to the number in the sample within each stratum. The aggregated individual load data was then averaged by stratum, weighted, and extrapolated to the class and total system levels, based on the mean-per-unit method.

The total class load estimates were obtained by multiplying the case-weighted sample mean estimates by the recorded class total population for the data period.

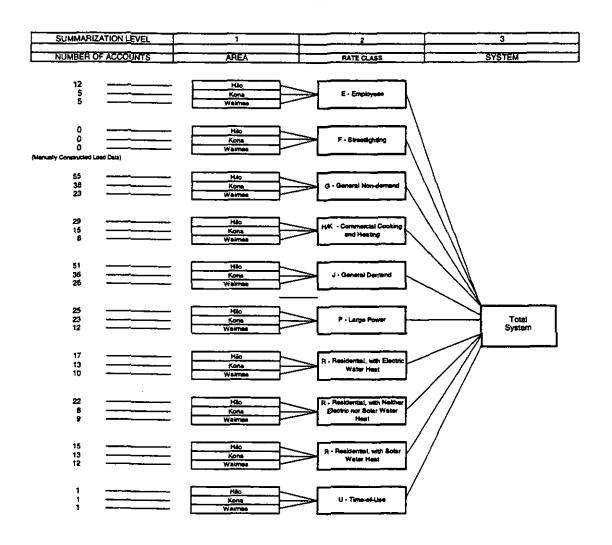
For each month, each class' data was normalized to the recorded total sales for that class. The total system load profile was obtained by adding the class load profiles at the sales level and multiplying it by the amount necessary to match the total system net-to-system generation for the month. Where hourly estimates were needed, the multiplier was adjusted to the actual recorded generation for each hour of the year.

Due to a change in software in the fall of 2001, the hourly generation data from HELCO had some gaps and inaccuracies. The data were edited by RLW Analytics, who replaced missing or obviously incorrect entries and edited the hours to conform to official am and pm peaks. Subsequently, the hourly generation data were normalized to official monthly net-to-system generation as reported by the HELCO Production Department.

Exhibit 3.2 depicts the process of totalization, and shows the number of accounts in each stratum from which data was collected.

Several sample accounts changed rate schedules between 2000, which was the base year for stratification and selection, and 2001-2002, when the data were collected. Accordingly, the final stratum counts differ slightly from the original sampling plan.

Exhibit 3.2
THE TOTALIZATION SCHEME



4. TOTAL SYSTEM LOAD

This chapter analyzes the entire system load. Load data was collected every 15 minutes at the customers' meters, validated against billing data, edited as necessary, summed by hour, extrapolated on a mean-per-unit basis to the total class, and normalized to the official monthly sales.

The system load at the sales level was derived by summing over all rate classes the data normalized to sales. Statistics at the net-to-system generation level were calculated by adjusting the sales-normalized data for line and transformer losses. This was done by normalizing it to the recorded system load profile provided by HELCO's System Operation Department.

Finally, the classes' contributions to system day and peaks, the hourly load on the system day and peak days, and the average weekday and weekend profiles were normalized to the recorded net-to-system generation.

Here are the system load characteristics:

- 1. From August 2001 through July 2002 the Hawaii Electric Light Company, Inc. served an average of 65,483 customers; total sales were 977 GWh. Schedule R accounted for 84% of the total customer count, and contributed the largest amount of sales, 38%. Schedule J accounted for 27% of the sales; Schedule P, for 23%. Table 4.1 summarizes the number of customers, sales, and contributions to the twelve-month system peak and day peak by rate. The class contributions to the system and day peaks are also shown in Exhibits 4.1 and 4.2, respectively.
- 2. The twelve-month system peak occurred on Monday, December 17, 2001 at 6:32 PM. Schedule R contributed the most to the system peak (57%), followed by Schedule J and Schedule P (both 17%). Table 4.2 and Exhibit 4.3 show the contribution of each rate schedule to the system peak for each month. The hourly load at the time of the system peak is normalized to the instantaneous peak demand at the net-to-system generation level.
- 3. The annual day peak occurred on Wednesday, July 31, 2002, at 10:13 AM. (A day peak is the highest demand before 5 PM.) Schedule J contributed the most to the day peak (35%), followed by Schedule R (28%) and Schedule P (22%). Schedule F, Public Streetlighting Service, does not contribute to day peaks, since the lights are on either photoelectric sensors or timers. Table 4.3 and Exhibit 4.4 show the share of each rate schedule to the system day peak for each month. The hourly load at time of system day peak is normalized to the instantaneous peak demand at the net-to-system generation level.

- 4. Table 4.4 displays the recorded system peak demands. The system peaks always occurred in the evening. The difference between the two peaks was largest in December (22 MW) and smallest in July (5 MW).
- 5. Table 4.5 and Exhibit 4.5 contain the sample-estimated hourly load by rate schedule on the days of the recorded monthly system peaks. The hourly load is normalized to the actual 60-minute integrated peak demand at the net-to-system generation level. Table 4.6 displays the percent contribution to each hour's total demand by rate schedule on the days of the monthly system peaks.
- 6. The estimated total system load is compared to the actual generated load for the days of the monthly system peaks in Table 4.7. The sample-based estimates for the system peaks are fairly accurate. The average absolute error of the estimated total kWh on the system peak days is 0.8%. At the hours of the twelve instantaneous system peaks, the average absolute error of the estimated kW is 3.4%. At the hour of the highest system peak (12/17/01 @ 18:32), the estimated kW is 1.3% higher than the actual generated load. Exhibit 4.6 displays the sample estimated 60-minute integrated demand against the recorded system load, and shows each rate schedule's load profile. The sample-based rate profiles are normalized to the recorded sales; the difference between the "actual" and "sample estimate" curves represent transmission, distribution and other losses.
- 7. Table 4.8 and Exhibit 4.7 provide monthly reports of the sample-estimated hourly load by rate schedule on the days of the recorded day peaks. The hourly load is normalized to the actual 60-minute net-to-system integrated peaks. Table 4.9 displays the percent contribution of each rate schedule to the hourly demand during the day of the monthly day peak.
- 8. In Table 4.10 the total system load is compared to the actual generated load for the days of the monthly day peaks. The average absolute error of the estimated total kWh on the peak days is 1.1%. At the hours of the twelve instantaneous day peaks, the average absolute error of the estimated kW is 3.7%. At the hour of the highest day peak (7/31/02 @ 10:13), the estimated kW is 0.2% lower than the actual generated load. Exhibit 4.8 displays the sample estimate against the recorded system load, and shows each rate schedule's load profile. As with the system (evening) peaks, the sample-based rate profiles are normalized to the recorded sales, and the difference between the "actual" and the normalized "sample estimate" curves represent transmission, distribution and other losses.
- 9. Table 4.11 reports the time of occurrence of each class' maximum peak demand during the study period. Only the class peak for Schedule R occurred during the priority-peak period (5 PM 9 PM). The major commercial schedules peaked at noon, 1 PM or 2 PM during the week. (Schedule F always attains its "peak" shortly after sunset and maintains it until shortly before sunrise.) None of the rate classes had a class peak concurrent with the recorded

- twelve-month system peak on December 17, 2001. Given the time of the peak (6:32 PM), however, it is reasonable to conclude that the system peak was driven by the Schedule R load.
- 10. Tables 4.12 and 4.13 report hourly load data for the average weekday and weekend at the net-to-system generation level for the total system. The load is normalized to the actual system loads. As shown in Exhibit 4.9, the monthly weekend and weekday load profiles follow the same pattern, with the weekday load noticeably higher than the weekend load between 7 AM and 5 PM.
- 11. The load factor measures how efficiently the system's generating capacity is being used. It is the ratio of the total energy actually consumed during a given period to the energy which would have been consumed had the peak demand been sustained for the entire duration of the period. The higher the load factor, the flatter the load profile of the class or system. Table 4.14 shows that among the rate classes, Schedule P had the highest load factor, 77%, followed by Schedules J, H/K, G and R, all in the range of 54-46%. The annual load factor based on the recorded total kWh and instantaneous net-to-system peak kW was 70%.
- 12. Table 4.1 showed that Schedule R had the highest consumption of the total system. Table 4.15 shows that Schedule R accounted for the largest proportion of energy use during the priority-peak hours (47%), during the on-peak hours (37%) and during the off-peak hours (37%). Schedules J and P accounted for 29% and 22%, respectively, of on-peak energy sales, and 27% and 25% of off-peak energy sales. Table 4.16 shows that, across all rate schedules, 14% of consumption occurred during priority peak hours, 54% occurred on-peak and 32% occurred off-peak.

Time-of-Use Period Definitions:

Priority Peak: 5 PM - 9 PM Monday through Friday
On-peak: 7 AM - 5 PM Monday through Friday

7 AM - 9 PM Saturday and Sunday

Off-peak: 9 PM - 7 AM Daily

Table 4.1 SUMMARY STATISTICS

Customers, Sales and Contributions to Peak Hours, by Rate Class

	Number of Customers ¹		Total Sales ¹		Contributio System I		Contributio	
Rate Class	Average No.	Percent	kWH	Percent	kW	Percent	kW	Percent
F	103	0.2	4,116,723	0.4	895	0.5	0	0.0
G	9,008	13.8	86,765,284	8.9	13,489	7.7	19,383	12.0
H/K	360	0.5	23,746,250	2.4	2,999	1.7	5,008	3.1
` J	1,265	1.9	267,228,394	27.3	29,130	16.7	57,133	35.4
P	61	0.1	220,257,940	22.5	28,879	16.6	35,204	21.8
R	54,683	83.5	371,667,508	38.0	98,704	56.7	44,669	27.7
<u> </u>	3	0.0	3,442,572	0.4	4	0.0	4	0.0
Total System	65,483	100.0	977,224,671	100.0	174,100	100.0	161,400	100.0

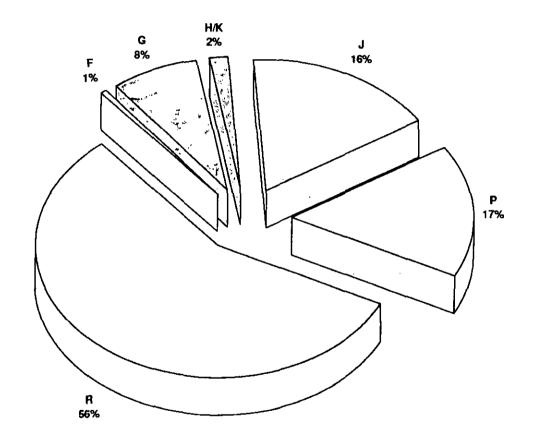
Contributions to peaks are normalized to the hourly net-to-system generation.

¹ Recorded data from "KWH SALES AND REVENUES INCLUDING UNBILLED REVENUES" (Hawaiian Electric Company Accounting Department).

Contribution to the system load during the hour of the instantaneous twelve-month net-to-system system peak of 174.1 MW on December 17, 2001 @ 18:32.

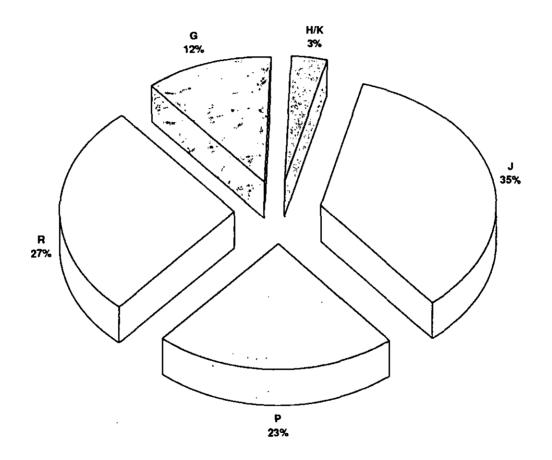
Contribution to the system load during the hour of the instantaneous twelve-month net-to-system day peak of 161.4 MW on July 31, 2002 @ 10:13.

Exhibit 4.1
CLASS CONTRIBUTIONS TO THE SYSTEM PEAK



The twelve-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32.

Exhibit 4.2 CLASS CONTRIBUTIONS TO THE DAY PEAK



The twelve-month instantaneous net-to-system day peak of 161.4 MW occurred on July 31, 2001 @ 10:13.

Table 4.2

NORMALIZED CLASS CONTRIBUTIONS TO THE SYSTEM PEAKS
60-Minute Integrated kW Demand at the Net-to-System Generation Level

Month	F	G	нж	J	P	R	U	Total System 1
	··· ·				<u> </u>	<u>-</u>	<u>`</u>	- Cystein
August 2001	0	14,756	3,068	35,542	31,494	83,466	175	168,500
Sep	253	14,120	3,815	38,012	31,072	77,223	5	164,500
Oct	0	14,240	4,012	36,559	31,974	81,411	4	168,200
Nov	914	14,787	3,345	37,236	2 <u>9,</u> 499	85,317	4	171,100
Dec	895	13,489	2,999	29,130	28,879	98,704	4	174,100
Jan	526	13,355	3,064	30,729	29,297	93,629	0	170,600
Feb	1,093	14,829	2,817	35,285	29,197	84,978	0	168,200
Mar	1,174	15,211	2,644	33,143	28,277	84,047	5	164,500
Apr	0	14,803	2,554	39,880	30,461	75,598	4	163,300
May	0	11,897	3,043	31,725	27,711	85,120	5	159,500
Jun	824	16,348	3,330	39,267	32,820	67,506	4	160,100
July 2002	637	14,122	3,032	39,738	33,178	75,289	4	166,000

¹ The twelve-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32.

Month	F	G	H/K	J	P	R	U	Total System
August 2001	0%	9%	2%	21%	19%	50%	0%	100%
Sep	0%	9%	2%	23%	19%	47%	0%	100%
Oct	0%	8%	2%	22%	19%	48%	0%	100%
Nov	1%	9%	2%	22%	17%	50%	0%	100%
Dec	1%	8%	2%	17%	17%	57%	0%	100%
Jan	0%	8%	2%	18%	17%	55%	0%	100%
Feb	1%	9%	2%	21%	17%	51%	0%	100%
Mar	1%	9%	2%	20%	17%	51%	0%	100%
Apr	0%	9%	2%	24%	19%	46%	0%	100%
May	0%	7%	2%	20%	17%	53%	0%	100%
Jun	. 1%	10%	2%	25%	20%	42%	0%	100%
July 2002	-0%	9%	2%	24%	20%	45%	0%	100%

Exhibit 4.3
CLASS CONTRIBUTIONS TO THE MONTHLY SYSTEM PEAKS

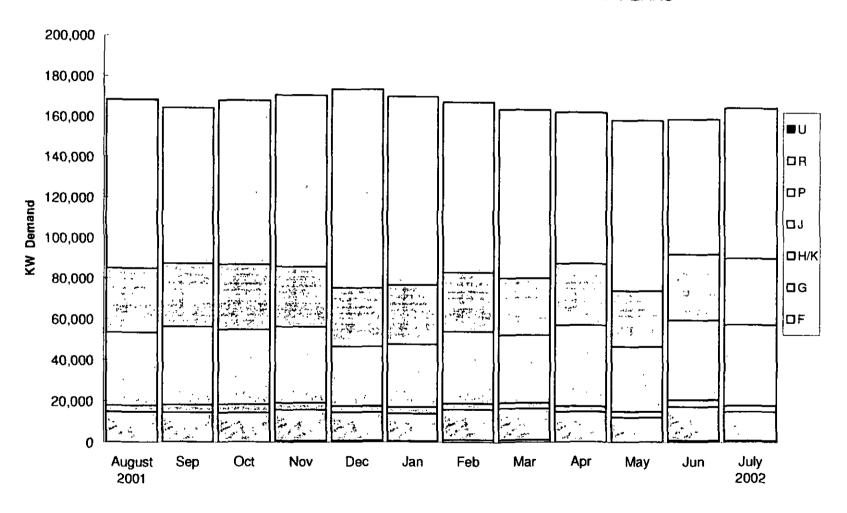


Table 4.3

NORMALIZED CLASS CONTRIBUTIONS TO THE DAY PEAKS
60-Minute Integrated kW Demand at the Net-to-System Generation Level

Month	F	G	ник	J	Р	R	u	Total System ¹
August 2001	0	19,648	5,647	52,163	34,711	44,285	246	156,700
Sep	0	17,108	5,234	52,402	32,143	44,376	2,438	153,700
Oct	0	18,643	5,698	51,325	36,670	41,059	5	153,400
Nov	0	19,537	4,335	46,044	31,704	52,375	4	154,000
Dec	0	19,983	4,774	50,156	33,069	44,414	4	152,400
Jan	0	19,122	5,259	48,410	33,675	43,034	0	149,500
Feb	0	15,881	4,676	50,456	31,504	44,883	0	147,400
Mar	0	15,633	4,123	51,120	28,631	47,793	0	147,300
Apr	0	16,843	5,134	53,078	33,257	43,683	4	152,000
May	0	15,403	4,581	57,267	32,131	41,612	5	151,000
Jun	0	19,743	5,490	48,504	34,287	46,473	4	154,500
July 2002	0	19,383	5,008	57,133	35,204	44,669	4	161,400

¹ The instantaneous net-to-system day peak of 161.4 MW occurred on July 31, 2002 @ 10:13.

Month	F	g	H/K	J	Р_	R	U	Total System
August 2001	0%	13%	4%	33%	22%	28%	0%	100%
Sep	0%	11%	3%	34%	21%	29%	2%	100%
Oct	0%	12%	4%	33%	24%	27%	0%	100%
Nov	0%	13%	3%	30%	21%	34%	0%	100%
Dec	0%	13%	3%	33%	22%	29%	0%	100%
Jan	0%	13%	4%	32%	23%	29%	0%	100%
Feb	0%	11%	3%	34%	21%	30%	0%	100%
Mar	0%	11%	3%	35%	19%	32%	0%	100%
Apr	0%	11%	3%	35%	22%	29%	0%	100%
May	0%	10%	3%	38%	21%	28%	0%	100%
Jun	0%	13%	4%	31%_	22%	30%	0%	100%
July 2002	0%	12%	3%	35%	22%	28%	0%	100%

Exhibit 4.4
CLASS CONTRIBUTIONS TO THE MONTHLY DAY PEAKS

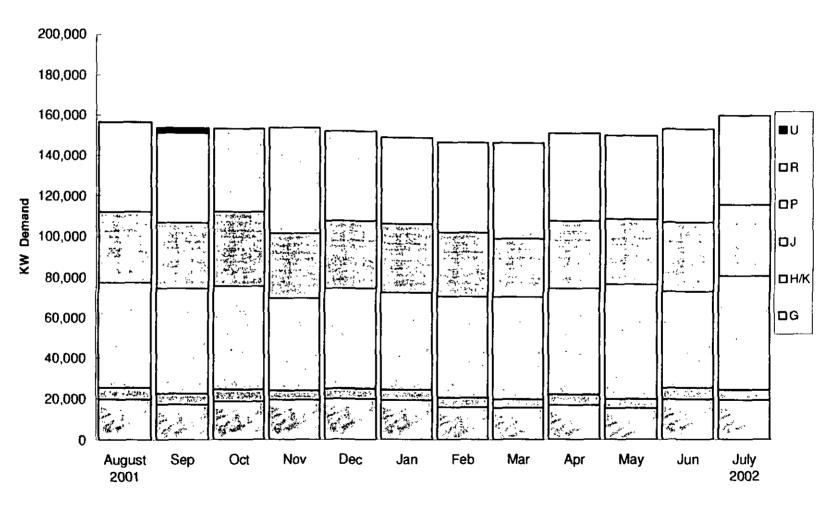


Table 4.4

RECORDED NET-TO-SYSTEM PEAK DEMANDS

Month	System	Peak (kW)	Day F	Peak (MW) 60-Min Integrated 154.6 148.1 150.4 152.1			
	Instantaneous	60-Min Integrated	Instantaneous	60-Min Integrated			
Aug 2001	168.5	165.4	156.7				
Sep	164.5	157.1	153.7	148.1			
Oct	168.2	162.2	153.4	150.4			
Nov	171.1	165.0	154.0	152.1			
Dec	174.1	170.2	152.4	147.4			
Jan	170.6	164.9	149.5	147.1			
Feb	168.2	161.2	147.4	145.1			
Mar	164.5	157.3	147.3	145.3			
Apr	163.3	159.4	152.0	151.1			
May	159.5	156.1	151.0	148.9			
Jun	160.1	151.5	154.5	152.9			
Jul 2002	166.0	163.4	161.4	160.5			
Annual	174.1	170.2	161.4	160.5			

Sources: Integrated Hourly Loads from HELCO Production Department, normalized to net-to-system by RLW Analytics, Inc., using HELCO Production Department Monthly Generation Reports.

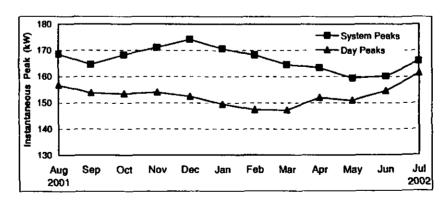


Table 4.5 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
August 2001

								System
HOUR	F	G	H/K	<u>J</u>	P	R	U	<u>Total</u>
1	1,264	7,012	1,913	22,482	24,960	30,512	1,011	89,154
2	1,176	6,658	1,695	27,390	23,036	24,758	895	85,609
3	1,193	6,278	1,697	24,058	23,492	26,068	952	83,739
4	1,234	6,485	1,777	21,597	24,022	26,906	956	82,977
5	1,109	5,897	1,729	20,761	21,760	33,804	867	85,926
6	645	6,301	2,090	30,011	23,296	35,445	848	98,637
7	0	7,043	2,610	34,590	25,776	49,175	668	119,863
8	0	9,887	3,811	41,862	28,083	48,556	229	132,428
9	0	14,616	4,752	57,585	30,660	38,171	217	146,001
10	0	18,108	5,385	54,249	33,803	41,057	232	152,834
11	0	19,389	5,572	51,474	34,252	43,701	243	154,631
12	0	20,704	5,813	49,654	34,290	44,013	231	154,705
13	0	20,828	5,673	51,176	34,102	42,695	232	154,707
14	0	21,062	5,742	51,994	33,275	42,638	256	154,966
15	0	20,364	5,586	51,779	33,521	42,460	259	153,970
16	0	20,349	5,670	46,937	33,834	47,535	211	154,536
17	0	18,074	5,500	45,414	36,038	48,718	193	153,937
18	0	14,433	4,559	36,465	33,240	62,159	184	151,040
19	0	15,683	3,582	34,013	32,738	70,157	180	156,354
20	890	14,407	2,995	34,701	30,748	81,492	170	165,403
21	1,136	11,919	2,817	34,045	30,422	72,292	174	152,805
22	1,241	10,379	2,766	34,093	31,976	57,863	673	138,992
23	1,255	8,783	2,329	28,382	30,952	47,965	1,021	120,687
24	1,310	8,084	2,228	25,992	29,518	36,331	1,066	104,527
TOTAL	12,453	312,745	88,291	910,704	717,794	1,094,471	11,971	3,148,429
MIN	0	5,897	1,695	20,761	21,760	24,758	170	82,977
MAX	1,310	21,062	5,813	57,585	36,038	81,492	1,066	165,403
MEAN	519	13,031	3,679	37,946	29,908	45,603	499	131,185

The instantaneous system peak of 168.5 MW occurred on August 27, 2001 @ 19:11.

Table 4.5 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK September 2001

								System
HOUR	F_	G	H/K	<u>J</u>	P	R	U	<u>Total</u>
1	1,249	7,494	2,090	23,703	25,459	29,491	1,089	90,574
2	1,224	7,398	1,937	22,507	24,046	26,840	1,070	85,022
3	1,292	7,484	1,945	21,085	24,486	24,605	1,143	82,040
4	1,245	6,916	1,952	21,650	24,236	24,974	1,113	82,085
5	1,207	6,925	2,079	21,976	24,707	29,302	2,919	89,115
6	812	6,670	2,388	23,684	25,250	39,580	3,060	101,445
7	0	7,478	2,699	28,746	25,525	53,848	652	118,949
8	0	9,893	3,507	43,400	26,863	47,637	5	131,306
9	0	15,226	4,543	51,904	29,747	40,733	5	142,157
10	0	17,401	5,035	52,821	30,773	40,028	5	146,064
11	0	18,648	5,403	53,164	31,941	39,735	5	148,895
12	0	18,324	5,569	51,122	31,878	40,795	5	147,693
· 13	0	18,170	5,343	50,447	29,881	43,190	5	147,037
14	0	17,189	5,556	52,655	30,815	40,665	5	146,885
15	0	16,522	5,487	53,095	30,924	39,564	5	145,597
16	0	16,673	5,474	48,899	31,632	43,835	5	146,518
17	0	15,859	5,365	42,198	30,409	51,933	5	145,769
18	0	12,116	4,444	31,848	27,894	67,930	5_	144,237
19	234	13,060	3,529	35,158	28,739	71,425	5_	152,151
20	1,129	14,742	3,197	38,459	29,529	70,323	5	157,383
21	1,097	11,601	2,814	38,474	27,263	66,363	5	147,618
22	1,133	9,150	2,629	37,722	27,371	54,887	911	133,804
23	1,177	8,462	2,392	29,305	26,815	45,026	1,117	114,293
24	1,253	8,249	2,305	27,096	26,947	34,395	1,117	101,362
TOTAL	13,053	291,651	87,679	901,119	673,130	1,067,106	14,264	3,048,001
MIN	0	6,670	1,937	21,085	24,046	24,605	5	82,040
MAX	1,292	18,648	5,569	53,164	31,941	71,425	3,060	157,383
MEAN	544	12,152	3,653	37,547	28,047	44,463	594	127,000

The instantaneous system peak of 164.5 MW occurred on September 25, 2001 @ 18:47.

Table 4.5 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
October 2001

								System
HOUR	, F	G	_H/K	J	P	R		Total
1	1,107	7,644	1,683	22,331	23,223	34,982	736	91,706
2	1,119	7,368	1,629	24,038	23,086	28,490	711	86,441
3	1,146	7,422	1,609	21,886	24,049	25,801	2,229	84,142
4	1,110	7,175	1,590	20,844	23,015	27,073	2,882	83,689
5	1,087	7,197	1,669	20,767	23,332	31,426	2,833	88,311
6	858	7,287	2,028	26,893	23,221	35,921	2,681	98,889
7	0	7,334	2,376	30,611	23,914	53,183	1,787	119,205
8	0	11,377	3,608	41,509	27,032	47,750	4	131,281
9	0	14,722	4,681	48,782	29,898	42,197	4	140,285
10	0	17,268	5,259	52,794	30,478	41,597	4	147,401
11	0	18,861	5,164	55,150	31,585	39,938	4	150,703
12	0	19,245	5,345	54,069	32,034	39,711	4	150,407
13	0	18,119	4,968	54,315	30,126	41,940	4	149,472
14	0	18,031	5,210	51,660	31,881	42,109	4	148,896
15	0	17,587	5,407	50,918	32,191	41,278	4	147,385
16	0	16,693	5,359	46,221	30,569	50,265	4	149,112
17	Ō	14,927	4,902	40,303	30,784	57,523	4	148,444
18	0	12,981	4,245	33,790	29,715	67 <u>,458</u>	4_	148,194
19	630	13,165	3,709	33,797	29,559	75,262	4	156,126
20	932	14,202	2,890	32,677	27,183	68,547	4	146,435
21	864	11,713	2,266	32,494	23,877	66,095	3	137,313
22	963	9,591	2,329	34,893	25,938	52,814	431	126,959
23	1,082	8,723	2,253	31,297	28,040	42,727	913	115,034
24	1,066	7,749	1,939	28,131	26,475	33,896	901	100,158
TOTAL	11,964	296,381	82,120	890,170	661,206	1,087,984	16,161	3,045,987
MIN	0	7,175	1,590	20,767	23,015	25,801	3	83,689
MAX	1,146	19,245	5,407	55,150	32,191	75,262	2,882	156,126
MEAN	499	12,349	3,422	37,090	27,550	45,333	673	126,916

The instantaneous system peak of 168.2 MW occurred on October 1, 2001 @ 18:47.

Table 4.5 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
November 2001

									System
_	HOUR	F	G	<u>H/K</u>	<u>J</u>	P	<u>R</u>	ນ	Total
_	1	1,138	6,846	1,625	24,963	22,761	27,946	764	86,043
	2	1,094	6,850	1,567	26,083	21,554	23,024	734	. 80,906
	3	1,138	6,788	1,585	22,821	23,057	21,450	2,558	79,397
	4	1,111	6,371	1,513	21,505	22,787	23,394	3,153	79,834
	5	1,076	6,450	1,592	22,077	22,913	28,742	2,987	85,836
	6	1,038	7,073	1,993	30,219	24,345	30,804	2,817	98,290
	7	311	7,433	2,242	30,003	25,849	54,173	518	120,530
	8	0	10,103	2,921	39,679	26,774	53,742	4	133,224
	9	0	14,153	4,079	52,261	29,317	44,875	4	144,690
	10	0	19,002	4,633	55,003	29,955	41,893	4	150,490
	11	0	18,452	4,801	48,352	30,168	47,350	4	149,127
	12	0	18,469	5,228	53,304	31,712	43,381	4	152,099
	13	0	18,169	5,160	55,897	31,039	39,891	4	150,161
	14	0	17,354	5,058	52,498	29,471	43,727	4	148,112
	15	0	17,393	5,218	48,630	29,382	43,733	4	144,361
	16	0	16,731	4,962	49,776	28,179	46,793	4	146,446
	17	0	17,068	5,206	49,379	32,002	50,870	5	154,531
	18	0	15,099	4,275	37,980	31,288	73,810	4	162,457
Γ	19_	888	14,369	3,250	36,184	28,665	82,907_	4	166,267
_	20	930	13,229	2,636	34,461	25,287	77,478	4	154,024
	21	1,037	12,438	2,632	32,519	26,673	64,197	4	139,500
	22	1,022	9,166	2,279	31,257	25,522	54,223	474	123,943
	23	1,064	7,923	2,093	31,393	25,875	38,056	895	107,299
	24	1,063	7,194	1,772	27,099	24,581	30,137	891	92,737
	TOTAL	12,911	294,123	78,321	913,343	649,156	1,086,599	15,849	3,050,303
	MIN	0	6,371	1,513	21,505	21,554	21,450	4	79,397
	MAX	1,138	19,002	5,228	55,897	32,002	82,907	3,153	166,267
	MEAN	538	12,255	3,263	38,056	27,048	45,275	660	127,096

The instantaneous system peak of 171.1 MW occurred on November 19, 2001 @ 18:35.

Table 4.5 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

December 2001

									System
	HOUR	F	G	H/K	J	<u> P</u>	R	U	<u>Total</u>
	1	1,087	6,708	1,599	24,220	22,063	28,025	850	84,552
	2	1,145	6,819	1,645	19,980	23,079	25,014	890	78,572
	3	1,105	6,356	1,523	17,907	22,050	25,238	580	74,758
	4	1,061	6,249	1,439	18,093	21,544	26,406	526	75,319
	5	1,046	6,149	1,539	17,985	22,113	32,239	1,779	82,848
	6	1,101	6,954	2,123	24,422	24,296	33,896	2,314	95,106
	7	385	7,194	2,421	27,119	24,992	53,643	623	116,377
	8	0	10,482	3,276	36,990	27,247	53,186	4	131,186
	9	. 0	16,283	4,102	45,538	29,581	43,081	4	138,589
	10	0	16,573	4,328	48,623	29,356	43,731	4	142,616
	11	0	18,142	4,761	46,702	30,728	42,991	4	143,329
	12	0	17,796	5,075	47,380	31,257	45,854	4	147,365
	13	0	16,849	4,920	50,081	29,538	42,503	4	143,895
	14	0	16,195	4,884	51,256	29,369	41,668	4	143,376
	15	0	16,593	4,789	41,441	30,035	45,125	4	137,987
	16	0	15,859	4,553	42,026	28,913	50,557	4	141,911
	17	0	13,817	4,107	39,149	28,051	61,322	4	146,449
	18	0	12,222	3,529	32,669	29,562	77,084	4	155,070
i	19	856	12,898	2,868	27,854	27,613	94,379	4	166,471
•	20	1,002	11,946	2,478	31,687	26,149	82,541	4	155,807
	21	1,014	10,900	2,297	29,566	25,334	71,943	4	141,058
	22	1,030	9,410	2,103	29,773	24,732	58,699	568	126,315
	23	1,056	8,265	1,891	31,295	23,894	46,197	814	113,411
	24	1,021	6,913	1,674	29,040	21,645	34,895	786	95,975
	TOTAL	12,908	277,571	73,922	810,796	633,143	1,160,218	9,784	2,978,342
	MIN	0	6,149	1,439	17,907	21,544	25,014	4	74,758
	MAX	1,145	18,142	5,075	51,256	31,257	94,379	2,314	166,471
	MEAN	538	11,565	3,080	33,783	26,381	48,342	408	124,098

The instantaneous system peak of 174.1 MW occurred on December 17, 2001 @ 18:32.

Table 4.5 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
January 2002

								System
HOUR	F	G	H/K	J	Р	R		<u>Total</u>
1	1,037	6,772	1,498	25,189	22,231	27,849	943	85,520
2	1,074	6,646	1,497	22,318	22,537	25,334	959	80,365
3	1,049	6,425	1,440	21,111	21,644	24,763	2,569	79,002
4	990	6,138	1,350	20,458	20,956	26,203	3,129	79,225
5	974	6,144	1,436	20,502	21,309	29,207	3,045	82,618
6	920	5,950	1,712	22,746	21,599	38,261	2,621	93,811
7	491	6,554	2,070	29,242	23,840	42,768	712	105,677
8	0	9,436	3,011	34,494	26,724	51,019	5	124,689
9	0	13,533	3,785	40,322	28,156	47,752	5	133,552
10	0	15,852	4,327	43,339	30,023	48,561	5	142,107
11	0	17,079	4,731	46,669	31,068	47,145	5	146,697
12	0	18,813	5,174	47,629	33,132	42,340	5	147,093
13	0	16,955	4,930	46,897	30,605	47,120	5	146,511
14	0	15,628	5,080	48,943	30,215	46,142	5	146,012
15	0	15,758	4,960	43,591	30,207	49,654	5	144,174
16	0	14,801	4,766	42,526	28,666	53,352	4	144,116
17	0	13,271	4,606	39,565	29,562	57,457	5	144,466
18	0	11,723	3,643	29,372	28,903	70,038	5 _	143,683
19	508	12,907	2,962	29,698	28,314	90,489	5 _	164,882
20	1,008	12,703	2,760	36,853	29,558	77,204	5	160,090
21	1,017	11,805	2,378	32,148	28,234	67,772	5	143,359
22	1,026	9,573	2,109	29,099	27,408	60,267	472	129,955
23	1,019	7,942	1,871	31,935	25,574	44,980	936	114,255
24	1,020	7,602	1,627	27,316	24,720	34,413	974	97,672
TOTAL	12,134	270,012	73,722	811,962	645,183	1,150,090	16,428	2,979,531
MIN	0	5,950	1,350	20,458	20,956	24,763	4	79,002
MAX	1,074	18,813	5,174	48,943	33,132	90,489	3,129	164,882
MEAN	506	11,250	3,072	33,832	26,883	47,920	684	124,147

The instantaneous system peak of 170.6 MW occurred on January 7, 2002 @ 18:42.

Table 4.5 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK February 2002

	*							System
HOUR	F	G	H/K	J	Р	R	υ	Total
1	1,240	7,362	1,592	21,004	24,255	30,169	942	86,563
2	1,254	7,124	1,514	21,768	24,268	24,939	966	81,833
3	1,161	6,381	1,410	17,989	22,548	27,204	2,485	79,177
4	1,139	6,411	1,415	18,459	22,702	26,203	2,874	79,204
5	1,090	6,446	1,465	20,588	22,715	29,658	2,742	84,704
6	1,076	6,842	1,880	20,250	24,734	39,332	2,708	96,821
7	417	7,581	2,177	26,633	25,888	50,840	1,143	114,679
8	0	8,563	2,606	37,566	27,799	52,245	4	128,783
9	0	12,127	3,185	41,216	28,714	51,252	4	136,499
10	0	15,264	3,828	45,301	31,155	47,207	4	142,760
11	0	16,976	4,183	48,500	31,966	43,459	5	145,088
12	0	17,240	4,241	43,887	31,971	47,489	4	144,832
13	0	15,435	4,149	44,446	31,681	49,397	4	145,112
14	0	16,384	4,234	45,903	32,924	46,412	5	145,862
15	0	15,945	3,947	44,095	30,965	48,223	5	143,179
16	0	15,430	4,022	41,068	29,070	53,131	4	142,725
17	0	15,775	3,966	35,460	29,121	60,432	4	144,758
18	0	14,141	3,626	30,881	28,893	71,743	4	149,289
19	263	14,181	2,851	29,709	28,000	85,021	4	160,029
20	1,028	13,947	2,650	33,186	27,460	79,923	4	158,199
21	1,034	11,587	2,219	31,444	26,687	71,806	4	144,781
22	969	7,442	1,929	29,934	24,019	62,698	101	127,093
23	1,203	8,295	2,123	27,789	27,333	47,695	344	114,781
24	1,267	7,813	1,749	25,620	24,953	35,680	632	97,712
TOTAL	13,141	274,692	66,959	782,696	659,821	1,182,157	14,998	2,994,464
MIN	0	6,381	1,410	17,989	22,548	24,939	4	79,177
MAX	1,267	17,240	4,241	48,500	32,924	85,021	2,874	160,029
MEAN	548	11,446	2,790	32,612	27,493	49,257	625	124,769

The Instantaneous system peak of 168.2 MW occurred on February 25, 2002 @ 19:00.

Table 4.5 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
March 2002

								System
HOUR	F	G	H/K	J	P	R	U	Total
1	1,399	7,432	1,419	27,073	22,921	30,822	687	91,752
2	1,404	7,724	1,449	24,013	23,642	25,262	829	84,325
3	1,293	6,897	1,299	20,277	22,061	26,692	2,785	81,306
4	1,331	7,195	1,339	23,164	22,547	22,066	3,358	81,000
5	1,355	7, 64 1	1,457	23,049	24,234	26,024	3,433	87,194
6	1,203	7,119	1,654	26,453	23,738	35,309	2,231	97,707
7	35	6,795	1,825	29,337	22,383	56,640	449	117,465
8	0	8,993	2,389	41,565	25,634	51,756	5	130,342
9	0	11,704	3,208	50,414	26,726	43,920	5	135,976
10	0	14,275	3,855	50,007	27,865	48,065	5	144,072
11	0	16,632	4,090	52,681	29,610	42,294	5	145,311
12	0	17,213	4,447	51,777	30,253	40,178	5	143,873
13	0	16,052	4,158	51,557	27,689	43,420	4	142,880
14	0	16,235	4,623	48,684	28,381	44,213	4	142,141
15	0	18,167	5,021	51,442	29,383	37,978	5	141,996
16	0	16,801	4,607	48,325	27,644	43,827	5	141,208
17	0	16,994	4,174	40,623	28,921	50,370	5	141,087
18	0	13,353	3,265	31,723	26,044	66,032	4	140,421
19	93	14,135	2,776	33,763	26,852	69,547	4	147,169
20	1,075	13,920	2,419	30,330	25,878	76,916	4	150,542
21	1,121	12,375	2,103	33,527	25,486	62,377	4	136,994
22	1,127	9,805	1,963	37,081	24,430	49,573	375	124,354
23	1,288	8,681	1,952	31,400	26,151	44,607	679	114,758
24	1,282	7,842	1,655	27,513	24,408	37,733	983	101,416
TOTAL	14,007	283,982	67,148	885,778	622,882	1,075,622	15,871	2,965,290
MIN	0	6,795	1,299	20,277	22,061	22,066	4	81,000
MAX	1,404	18,167	5,021	52,681	30,253	76,916	3,433	150,542
MEAN	584	11,833	2,798	36,907	25,953	44,818	661	123,554

The instantaneous system peak of 164.5 MW occurred on March 4, 2002 @ 19:04.

Table 4.5 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
April 2002

								System
HOUR	F	G	H/K	J	P	R	U	<u>Total</u>
1	1,079	6,376	1,589	26,417	22,360	32,026	575	90,422
2 3	1,113	6,397	1,602	25,764	22,486	26,858	578	84,798
3	1,137	6,256	1,578	24,066	23,171	24,976	594	81,777
4	1,169	6,605	1,658	21,937	23,776	25,306	577	81,028
5	1,183	6,795	1,795	23,268	25,059	26,541	2,404	87,044
6	684	6,516	2,030	26,758	25,324	34,816	2,005	98,132
7	0	7,225	2,543	31,586	27,291	49,944	274	118,864
8	0	8,592	3,136	38,609	26,719	54,280	4	131,340
9	0	13,082	4,535	52,126	31,272	40,361	5	141,381
10	0	15,705	5,331	54,517	32,257	38,908	5	146,722
11	0	16,230	5,128	56,136	32,573	40,757	4	150,828
12	0	16,739	5,102	52,752	33,052	43,415	4	151,065
13	0	16,761	5,143	55,712	32,648	41,157	4	151,424
14	0	16,662	5,112	55,383	32,455	40,915	4	150,532
15	0	17,201	5,001	54,361	32,481	40,698	4	149,747
16	0	16,749	4,952	49,000	32,726	46,002	4	149,434
17	0	14,900	4,621	43,677	32,849	52,847	4	148,898
18	0	12,328	3,973	36,919	33,058	59,566	5	145,849
19	0	11,589	3,272	40,562	32 <u>,8</u> 98	63,507	5	_ 151,83 <u>3</u>
20	958	14,360	2,478	38,686	29,549	73,335	4	159,369
21	1,031	12,095	2,595	36,050	28,590	68,602	4	148,967
22	1,091	9,747	2,314	36,725	29,483	57,732	543	137,635
23	1,198	8,286	2,176	31,178	30,316	45,797	1,035	119,985
24	1,230	7,495	1,866	29,116	29,502	33,261	1,058	103,528
TOTAL	11,873	274,690	79,530	941,303	701,895	1,061,606	9,705	3,080,601
MIN	0	6,256	1,578	21,937	22,360	24,976	4	81,028
MAX	1,230	17,201	5,331	56,136	33,058	73,335	2,404	159,369
MEAN	495	11,445	3,314	39,221	29,246	44,234	404	128,358

The instantaneous system peak of 163.3 MW occurred on April 10, 2002 @ 19:07.

Table 4.5 j
TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
May 2002

				•				System
HOUR	F	G	H/K		P	R	U	Total
1	1,272	7,100	1,583	26,824	23,533	26,938	297	87,548
2	1,242	6,578	1,517	22,894	22,741	27,491	253	82,716
3	1,257	6,712	1,529	22,892	22,570	23,595	253	78,809
4	1,243	6,717	1,585	23,088	21,742	23,498	207	78,080
5	1,232	6,643	1,596	23,783	22,869	27,214	1,909	85,247
6	395	6,572	1,999	27,559	23,874	34,971	1,787	97,156
7	0	6,797	2,475	31,595	25,092	50,776	26	116,761
8	0	9,578	3,388	40,364	28,263	49,416	5	131,013
9	0	13,454	3,931	50,248	29,252	42,418	5	139,307
10	0	15,461	4,283	50,835	29,590	45,537	5	145,709
11	0	15,365	4,162	50,652	30,240	48,494	5	148,917
12	0	16,674	4,437	53,167	31,593	43,139	5	149,014
13	0	16,114	4,390	49,719	30,179	48,866	5	149,272
14	0	16,322	4,410	48,978	29,924	48,170	6	147,810
15	0	17,014	4,658	50,502	31,023	43,140	7	146,343
16	0	16,074	4,249	42,904	28,949	53,513	7	145,698
17	0	15,641	4,097	39,969	31,475	54,034	5	145,221
18	0	12,579	3,416	29,708	27,031	69,950	<u>5</u>	142,688
19	0	10,838	2,772	28,901	25,244	77,543	4	145,302
20	885	11,637	2,737	33,592	26,691	74,774	4	150,321
21	1,179	10,968	2,571	35,132	26,163	64,727	5	140,745
22	1,209	8,605	2,254	36,192	26,321	56,954	493	132,029
23	1,379	8,922	2,102	31,050	28,101	45,985	776	118,315
24	1,376	7,978	1,943	26,689	25,955	37,771	705	102,416
TOTAL	12,669	270,342	72,085	877,237	648,413	1,118,915	6,778	3,006,439
MIN	0	6,572	1,517	22,892	21,742	23,498	4	78,080
MAX	1,379	17,014	4,658	53,167	31,593	77,543	1,909	150,321
MEAN	528	11,264	3,004	36,552	27,017	46,621	282	125,268

The instantaneous system peak of 159.5 MW occurred on May 13, 2002 @ 18:48.

Table 4.5 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

June 2002

								System
HOUR	F_	G	H/K	J	РР	R	บ	Total
1	1,367	7,103	1,775	28,513	24,340	32,836	542	96,476
2	1,368	7,082	1,659	26,543	23,714	29,526	668	90,561
3	1,424	7,356	1,651	26,959	24,398	25,854	823	88,465
4	1,334	6,743	1,590	27,807	23,513	25,258	744	86,991
5	1,327	6,842	1,645	27,824	23,959	28,186	2,184	91,966
6	374	7,015	2,174	31,535	25,735	32,084	2,290	101,207
7	0	7,840	2,416	31,587	26,676	43,410	435	112,363
8	0	12,713	3,600	37,437	30,438	46,421	4	130,613
9	0	14,753	4,317	42,233	29,124	53,143	4	143,574
10	0	17,660	5,487	49,222	35,256	42,675	4	150,304
11	0	19,416	5,576	51,624	34,603	41,097	4	152,319
12	0	18,611	5,453	49,125	32,021	47,723	4	152,937
13	0	18,050	5,474	51,069	33,039	45,402	4	153,038
14	0	19,190	6,034	49,417	34,427	43,501	4	152,574
15	0	18,284	6,028	49,391	35,430	42,618	4	151,755
16	0	19,476	5,496	44,080	32,272	49,609	4	150,937
17	0	18,436	5,542	37,921	34,128	54,628	4	150,659
18	0	15,961	4,839	33,940	33,643	58,108	4	146,495
19	0	13,347	3,378	29,093	27,969	75,548	4	149,338
20	800	15,876	3,234	38,133	31,872	65,557	4	155,477
21	1,287	14,270	2,789	36,350	28,935	61,794	4	145,429
22	1,276	9,538	2,367	35,943	28,059	57,853	345	135,381
23	1,345	8,392	2,294	29,288	27,394	51,909	534	121,156
24	1,409	8,266	2,097	28,052	26,758	39,829	521	106,932
TOTAL	13,311	312,220	86,915	893,087	707,704	1,094,566	9,144	3,116,947
MIN	0	6,743	1,590	26,543	23,513	25,258	4	86,991
	1,424	19,476	6,034	51,624	35,430	75.548	2,290	155,477
MAX MEAN	1,424 555	13,009	3,621	37,212	29,488	45,607	381	129,873
17111		,	-,'	,	,			• * =

The instantaneous system peak of 160.1 MW occurred on June 25, 2002 @ 19:50.

Table 4.5 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

July 2002

								System
HOUR	<u></u>	G	H/K		P_	R	<u> </u>	Total
1	1,232	7,236	1,768	28,592	25, 690	35,994	622	101,134
2	1,255	7,363	1,709	25,830	25,707	32,872	565	95,301
3	1,315	7,959	1,746	23,447	26,144	30,258	591	91,461
4	1,245	7,231	1,732	24,414	25,409	29,616	519	90,166
5	1,214	7,270	1,984	23,755	26,054	32,815	2,129	95,221
6	504	7,424	2,143	27,232	27,513	38,384	2,157	105,356
7	0	7,289	2,609	32,373	27,464	45,269	287	115,292
8	0	11,963	3,817	42,516	31,788	45,199	4	135,288
9	0	16,883	4,746	47,840	33,280	47,167	4	149,922
10	0	19,300	5,274	50,624	34,520	49,020	4	158,742
11	0	20,283	5,624	51,833	36,530	46,240	4	160,513
12	0	20,212	5,638	53,292	34,760	45,510	4	159,417
13	0	19,308	5,483	51,863	33,857	50,261	5	160,777
14	0	20,108	5,592	52,725	34,176	47,586	184	160,372
15	0	19,517	5,632	52,554	35,478	44,787	4	157,971
16	0	18,749	5,357	49,024	34,982	51,518	4	159,634
17	0	20,144	5,407	47,692	37,531	48,710	4	159,489
18	0	16,490	4,550	36,645	35,754	61,469	4	154,912
19	0	13,392	3,309	37,948	32,602	70 <u>,36</u> 5	4	15 <u>7</u> ,620
20	624	13,835	2,971	38,931	32,505	73,761	4	162,631
21	1,128	11,620	2,603	39,869	31,631	64,956	4	151,810
22	1,034	8,813	2,262	39,035	28,284	59,383	225	139,038
23	1,194	8,448	2,163	36,284	30,721	49,273	483	128,565
24	1,213	7,999	2,135	30,148	28,290	40,610	292	110,686
TOTAL	11,958	318,837	86,253	944,467	750,672	1,141,022	8,108	3,261,317
MIN	0	7,231	1,709	23,447	25,409	29,616	4	90,166
MAX	1,315	20,283	5,638	53,292	37,531	73,761	2,157	162,631
MEAN	498	13,285	3,594	39,353	31,278	47,543	338	135,888

The instantaneous system peak of 166.0 MW occurred on July 29, 2002 @ 19:40.

Exhibit 4.5 a

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

August 2001

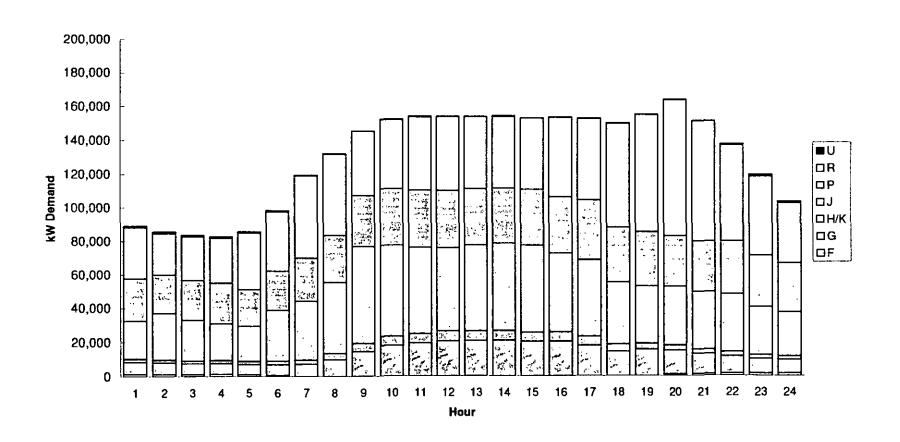


Exhibit 4.5 b

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level
September 2001

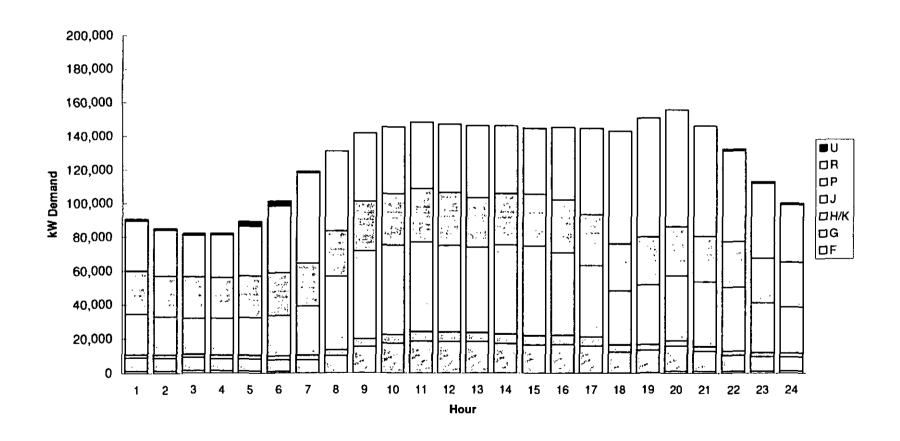


Exhibit 4.5 c

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

October 2001

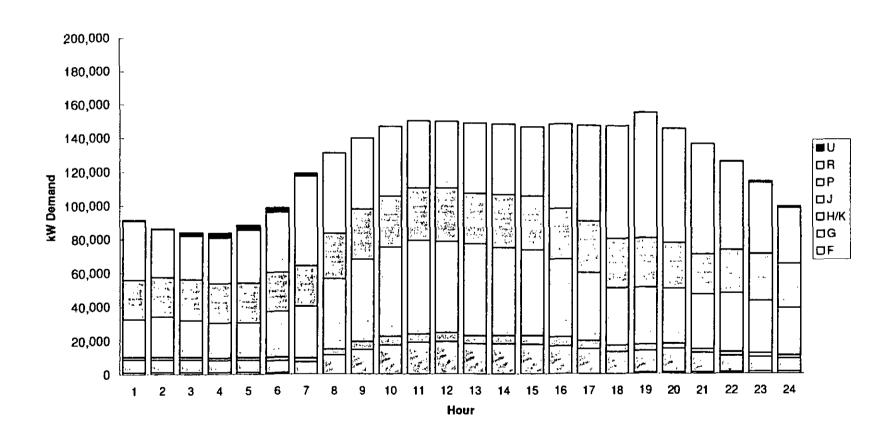


Exhibit 4.5 d

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

November 2001

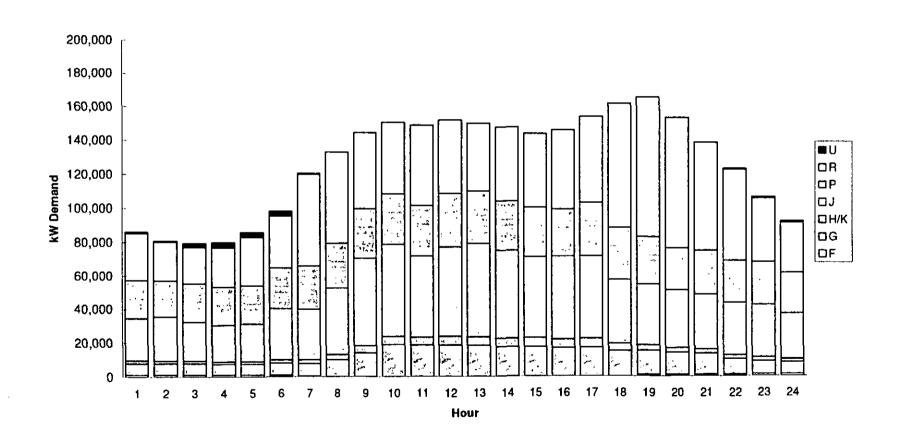


Exhibit 4.5 e

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

December 2001

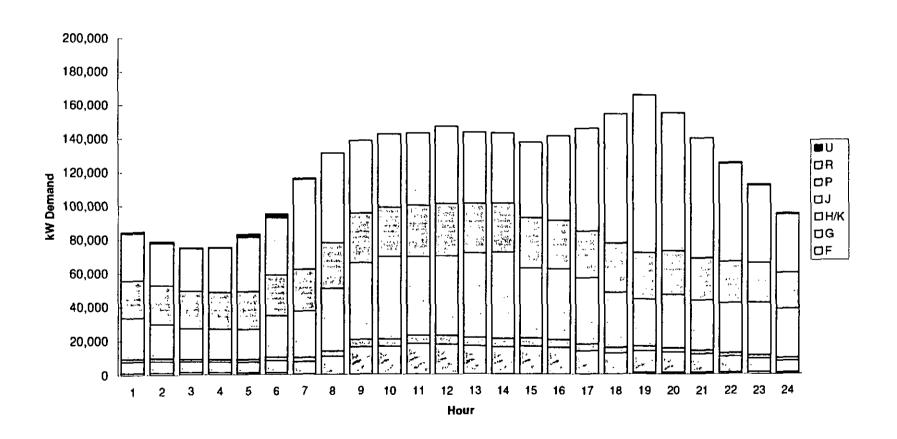


Exhibit 4.5 f

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK

Normalized at the Net-to-System Generation Level

January 2002

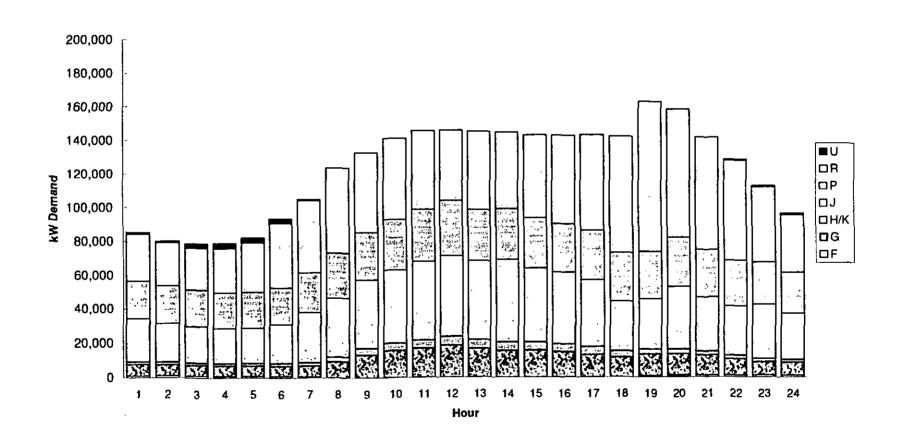


Exhibit 4.5 g

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level
February 2002

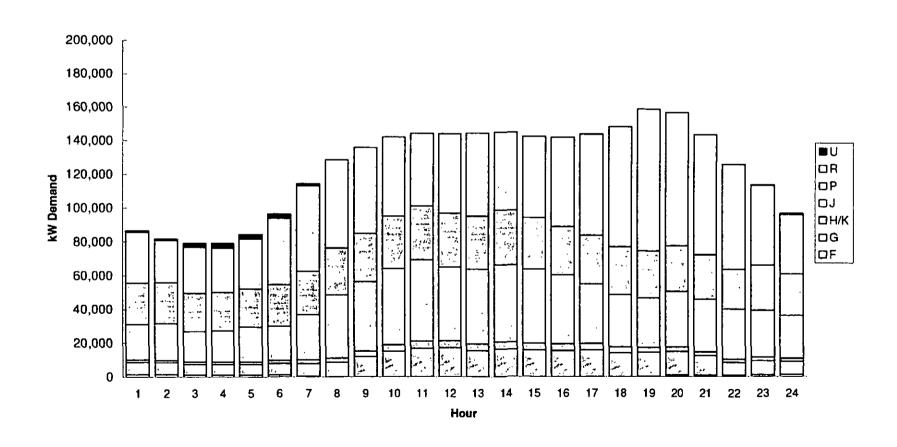


Exhibit 4.5 h

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

March 2002

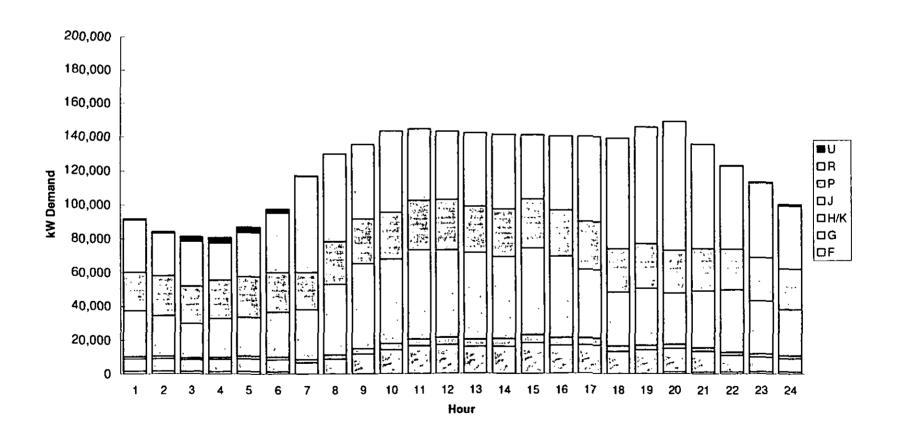


Exhibit 4.5 i
HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level
April 2002

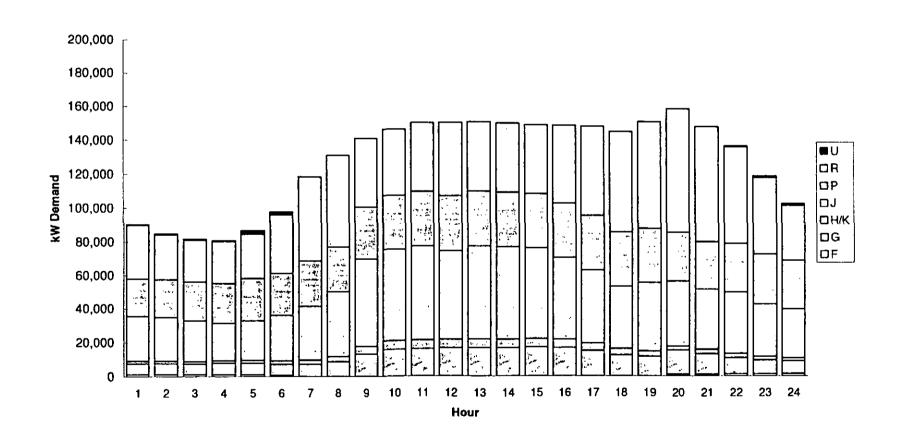


Exhibit 4.5 j
HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level
May 2002

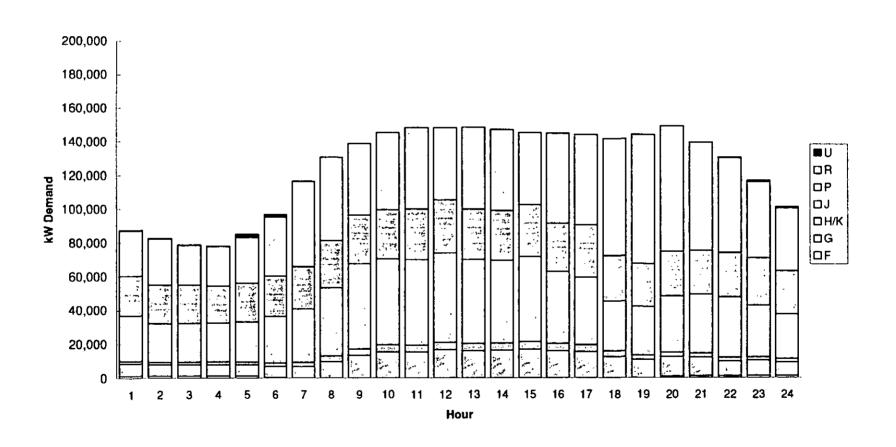


Exhibit 4.5 k

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

June 2002

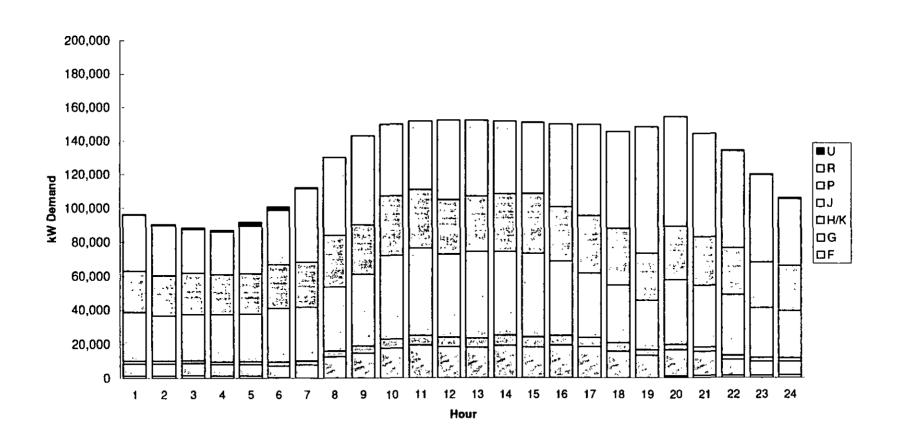


Exhibit 4.5 I

HOURLY CLASS LOAD FOR THE DAY OF THE SYSTEM PEAK
Normalized at the Net-to-System Generation Level

July 2002

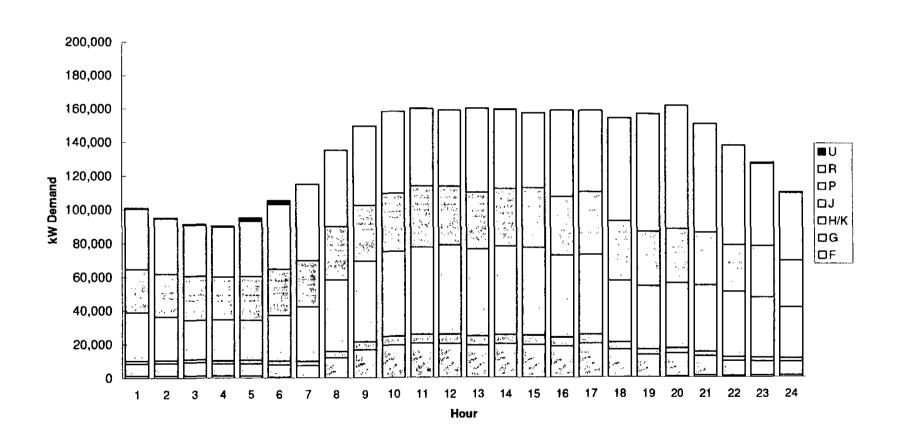


Table 4.6 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level

August 2001

HOUR	_ F	G	H/K	J	Р	R	U	System Total
1	1.4	7.9	2.1	25.2	28.0	34.2	1.1	100 %
2	1.4	7.8	2.0	32.0	26.9	28.9	1.0	100
3	1.4	7.5	2.0	28.7	28.1	31.1	1.1	100
4	1.5	7.8	2.1	26.0	29.0	32.4	1.2	100
5	1.3	6.9	2.0	24.2	25.3	39.3	1.0	100.
6	0.7	6.4	2.1	30.4	23.6	35.9	0.9	100
7	0.0	5.9	2.2	28.9	21.5	41.0	0.6	100
8	0.0	7.5	2.9	31.6	21.2	36.7	0.2	100
9	0.0	10.0	3.3	39.4	21.0	26.1	0.1	100
10	0.0	11.8	3.5	35.5	22.1	26.9	0.2	100
11	0.0	12.5	3.6	33.3	22.2	28.3	0.2	100
12	0.0	13.4	3.8	32.1	22.2	28.4	0.1	100
13	0.0	13.5	3.7	33.1	22.0	27.6	0.2	100
14	0.0	13.6	3.7	33.6	21.5	27.5	0.2	100
15	0.0	13.2	3.6	33.6	21.8	27.6	0.2	100
16	0.0	13.2	3.7	30.4	21.9	30.8	0.1	100
17	0.0	11.7	3.6	29.5	23.4	31.6	0.1	100
18	0.0	9.6	3.0	24.1	22.0	41.2	0.1	100
19	0.0	10.0	2.3	21.8	20.9	44.9	0.1	100
20	0.5	8.7	1.8	21.0	18.6	49.3	0.1	100
21	0.7	7.8	1.8	22.3	19.9	47.3	0.1	100
22	0.9	7.5	2.0	24.5	23.0	41.6	0.5	100
23	1.0	7.3	1.9	23.5	25.6	39.7	8.0	100
24	1.3	7.7	2.1	24.9	28.2	34.8	1.0	100
MIN	0.0	5.9	1.8	21.0	18.6	26.1	0.1	100
MAX	1.5	13.6	3.8	39.4	29.0	49.3	1.2	100
MEAN	0.5	9.6	2.7	28.7	23.3	34.7	0.5	100

The instantaneous net-to-system peak of 168.5 MW occurred on August 27, 2001 @ 19:11.

Table 4.6 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level September 2001

								System
HOUR	F	G	H/K	J	P	R	U	<u>Total</u>
1	1.4	8.3	2.3	26.2	28.1	32.6	1.2	100 %
2 3	1.4	8.7	2.3	26.5	28.3	31.6	1.3	100
3	1.6	9.1	2.4	25.7	29.8	30.0	1.4	100
4	1.5	8.4	2.4	26.4	29.5	30.4	1.4	100
5	1.4	7.8	2.3	24.7	27.7	32.9	3.3	100
6	0.8	6.6	2.4	23.3	24.9	39.0	3.0	100
7	0.0	6.3	2.3	24.2	21.5	45.3	0.5	100
8	0.0	7.5	2.7	33.1	20.5	36.3	0.0	100
9	0.0	10.7	3.2	36.5	20.9	28.7	0.0	100
10	0.0	11.9	3.4	36.2	21.1	27.4	0.0	100
11	0.0	12.5	3.6	35.7	21.5	26.7	0.0	100
12	0.0	12.4	3.8	34.6	21.6	27.6	0.0	100
13	0.0	12.4	3.6	34.3	20.3	29.4	0.0	100
14	0.0	11.7	3.8	35.8	21.0	27.7	0.0	100
15	0.0	11.3	3.8	36.5	21.2	27.2	0.0	100
16	0.0	11.4	3.7	33.4	21.6	29.9	0.0	100
17	0.0	10.9	3.7	28.9	20.9	35.6	0.0	100
18	0.0	8.4	3.1	22.1	19.3	47.1	0.0	100
19	0.2	8.6	2.3	23.1	18.9	46.9	0.0	100
20	0.7	9.4	2.0	24.4	18.8	44.7	0.0	100
21	0.7	7.9	1.9	26.1	18.5	45.0	0.0	100
22	0.8	6.8	2.0	28.2	20.5	41.0	0.7	100
23	1.0	7.4	2.1	25.6	23.5	39.4	1.0	100
24	1.2	8.1	2.3	26.7	26.6	33.9	1.1	100
MIN	0.0	6.3	1.9	22.1	18.5	26.7	0.0	100
MAX	1.6	12.5	3.8	36.5	29.8	47.1	3.3	100
MEAN	0.5	9.4	2.8	29.1	22.8	34.8	0.6	100

The instantaneous net-to-system peak of 164.5 MW occurred on September 25, 2001 @ 18:47.

Table 4.6 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level October 2001

								System
HOUR	F	G	H/K	J	_ P	R_	U	Total
1	1.2	8.3	1.8	24.4	25.3	38.1	0.8	100 %
2	1.3	8.5	1.9	27.8	26.7	33.0	8.0	100
3	1.4	8.8	1.9	26.0	28.6	30.7	2.6	100
4	1.3	8.6	1.9	24.9	27.5	32.3	3.4	100
5	1.2	8.2	1.9	23.5	26.4	35.6	3.2	100
6	0.9	7.4	2.1	27.2	23.5	36.3	2.7	100
7	0.0	6.2	2.0	25.7	20.1	44.6	1.5	100
8	0.0	8.7	2.7	31.6	20.6	36.4	0.0	100
9	0.0	10.5	3.3	34.8	21.3	30.1	0.0	100
10	0.0	11.7	3.6	35.8	20.7	28.2	0.0	100
11	0.0	12.5	3.4	36.6	21.0	26.5	0.0	100
12	0.0	12.8	3.6	35.9	21.3	26.4	0.0	100
13	0.0	12.1	3.3	36.3	20.2	28.1	0.0	100
14	0.0	12.1	3.5	34.7	21.4	28.3	0.0	100
15	0.0	11.9	3.7	34.5	21.8	28.0	0.0	100
16	0.0	11.2	3.6	31.0	20.5	33.7	0.0	100
17	0.0	10.1	3.3	27.2	20.7	38.8	0.0	100
18	0.0	8.8	2.9	22.8	20.1	45.5	0.0	100
19	0.4	8.4	2.4	21.6	18.9	48.2	0.0	100
20	0.6	9.7	2.0	22.3	18.6	46.8	0.0	100
21	0.6	8.5	1.7	23.7	17.4	48.1	0.0	100
22	0.8	7.6	1.8	27.5	20.4	41.6	0.3	100
23	0.9	7.6	2.0	27.2	24.4	37.1	0.8	100
24	1.1	7.7	1.9	28.1	26.4	33.8	0.9	100
MIN	0.0	6.2	1.7	21.6	17.4	26.4	0.0	100
MAX	1.4	12.8	3.7	36.6	28.6	48.2	3.4	100
MEAN	0.5	9.5	2.6	28.8	22.2	35.7	0.7	100

The instantaneous net-to-system peak of 168.2 MW occurred on October 1, 2001 @ 18:47.

Table 4.6 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level

November 2001

			INOACII	IDE! ZUV				•
HOUR	F	G	H/K	J	P	R	U	System Total
1	1.3	8.0	1.9	29.0	26.5	32.5	0.9	100 %
2	1.4	8.5	1.9	32.2	26.6	28.5	0.9	100 /8
3	1.4	8.5	2.0	28.7	29.0	27.0	3.2	100
4	1.4	8.0	1.9	26.9	28.5	29.3	3.9	100
5	1.3	7.5	1.9	25.7	26.7	33.5	3.5	100
6	1.1	7.2	2.0	30.7	24.8	31.3	2.9	100
7	0.3	6.2	1.9	24.9	21.4	44.9	0.4	100
8	0.0	7.6	2.2	29.8	20.1	40.3	0.0	100
9	0.0	9.8	2.8	36.1	20.3	31.0	0.0	100
10	0.0	12.6	3.1	36.5	19.9	27.8	0.0	100
11	0.0	12.4	3.2	32.4	20.2	31.8	0.0	100
12	0.0	12.1	3.4	35.0	20.8	28.5	0.0	100
13	0.0	12.1	3.4	37.2	20.7	26.6	0.0	100
14	0.0	11.7	3.4	35.4	19.9	29.5	0.0	100
15	0.0	12.0	3.6	33.7	20.4	30.3	0.0	100
16	0.0	11.4	3.4	34.0	19.2	32.0	0.0	100
17	0.0	11.0	3.4	32.0	20.7	32.9	0.0	100
18	0.0	9.3	2.6	23.4	19.3	45.4	0.0	100
19	0.5	8.6	2.0	21.8	17.2	49.9	0.0	100
20	0.6	8.6	1.7	22.4	16.4	50.3	0.0	100
21	0.7	8.9	1.9	23.3	19.1	46.0	0.0	100
22	8.0	7.4	1.8	25.2	20.6	43.7	0.4	100
23	1.0	7.4	2.0	29.3	24.1	35.5	0.8	100
24	1.1	7.8	1.9	29.2	26.5	32.5	1.0	100
MIN	0.0	6.2	1.7	21.8	16.4	26.6	0.0	100
MAX	1.4	12.6	3.6	37.2	29.0	50.3	3.9	100
MEAN	0.5	9.4	2.5	29.8	22.0	35.0	0.7	100

The instantaneous net-to-system peak of 171.1 MW occurred on November 19, 2001 @ 18:35.

Table 4.6 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level

December 2001

HOUR	F	G	H/K	J	P	R	U	System Total
1	1.3	7.9	1.9	28.6	26.1	33.1	1.0	100 %
2	1.5	8.7	2.1	25.4	29.4	31.8	1.1	100
3	1.5	8.5	2.0	24.0	29.5	33.8	0.8	100
4	1.4	8.3	1.9	24.0	28.6	35.1	0.7	100
5	1.3	7.4	1.9	21.7	26.7	38.9	2.1	100
6	1.2	7.3	2.2	25.7	25.5	35.6	2.4	100
7	0.3	6.2	2.1	23.3	21.5	46.1	0.5	100
8	0.0	8.0	2.5	28.2	20.8	40.5	0.0	100
9	0.0	11.7	3.0	32.9	21.3	31.1	0.0	100
10	0.0	11.6	3.0	34.1	20.6	30.7	0.0	100
11	0.0	12.7	3.3	32.6	21.4	30.0	0.0	100
12	0.0	12.1	3.4	32.2	21.2	31.1	0.0	100
13	0.0	11.7	3.4	34.8	20.5	29.5	0.0	100
14	0.0	11.3	3.4	35.7	20.5	29.1	0.0	100
15	0.0	12.0	3.5	30.0	21.8	32.7	0.0	100
16	0.0	11.2	3.2	29.6	20.4	35.6	0.0	100
17	0.0	9.4	2.8	26.7	19.2	41.9	0.0	100
18	0.0	7.9	2.3	21.1	19.1	49.7	0.0	100
19	0.5	7.7	1.7	16.7	16.6	56.7	0.0	100
20	0.6	7.7	1.6	20.3	16.8	53.0	0.0	100
21	0.7	7.7	1.6	21.0	18.0	51.0	0.0	100
22	8.0	7.4	1.7	23.6	19.6	46.5	0.4	100
23	0.9	7.3	1.7	27.6	21.1	40.7	0.7	100
24	1.1	7.2	1.7	30.3	22.6	36.4	8.0	100
MIN	0.0	6.2	1.6	16.7	16.6	29.1	0.0	100
MAX	1.5	12.7	3.5	35.7	29.5	56.7	2.4	100
MEAN	0.5	9.1	2.4	27.1	22.0	38.4	0.4	100

The instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32.

Table 4.6 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level January 2002

								System
HOUR	F	G	H/K	J	P	R	<u> </u>	Total
1	1.2	7.9	1.8	29.5	26.0	32.6	1.1	100 %
2 3	1.3	8.3	1.9	27.8	28.0	31.5	1.2	100
	1.3	8.1	1.8	26.7	27.4	31.3	3.3	100
4	1.3	7.7	1.7	25.8	26.5	33.1	3.9	100
5	1.2	7.4	1.7	24.8	25.8	35.4	3.7	100
6	1.0	6.3	1.8	24.2	23.0	40.8	2.8	100
7	0.5	6.2	2.0	27.7	22.6	40.5	0.7	100
8	0.0	7.6	2.4	27.7	21.4	40.9	0.0	100
9	0.0	10.1	2.8	30.2	21.1	35.8	0.0	100
10	0.0	11.2	3.0	30.5	21.1	34.2	0.0	100
11	0.0	11.6	3.2	31.8	21.2	32.1	0.0	100
12	0.0	12.8	3.5	32.4	22.5	28.8	0.0	100
13	0.0	11. 6	3.4	32.0	20.9	32.2	0.0	100
14	0.0	10.7	3.5	33.5	20.7	31.6	0.0	100
15	0.0	10.9	3.4	30.2	21.0	34.4	0.0	100
16	0.0	10.3	3.3	29.5	19.9	37.0	0.0	100
17	0.0	9.2	3.2	27.4	20.5	39.8	0.0	100
18	0.0	8.2	2.5	20.4	20.1	48.7	0.0	100
19	0.3	7.8	1.8	18.0	17.2	54.9	0.0	100
20	0.6	7.9	1.7	23.0	18.5	48.2	0.0	100
21	0.7	8.2	1.7	22.4	19.7	47.3	0.0	100
22	0.8	7.4	1.6	22.4	21.1	46.4	0.4	100
23	0.9	7.0	1.6	28.0	22.4	39.4	0.8	100
24	1.0	7.8	1.7	28.0	25.3	35.2	1.0	100
MIN	0.0	6.2	1.6	18.0	17.2	28.8	0.0	100
· MAX	1.3	12.8	3.5	33.5	28.0	54.9	3.9	100
MEAN	0.5	8.8	2.4	27.2	22.2	38.0	8.0	100

The instantaneous net-to-system peak of 170.6 MW occurred on January 7, 2002 @ 18:42.

Table 4.6 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level February 2002

								System
HOUR	<u> </u>	G	H/K	J	P	<u>R</u> _	U	Total
1	1.4	8.5	1.8	24.3	28.0	34.9	1.1	100 %
2	1.5	8.7	1.8	26.6	29.7	30.5	1.2	100
3	1.5	8.1	1.8	22.7	28.5	34.4	3.1	100
4	1.4	8.1	1.8	23.3	28.7	33.1	3.6	100
5	1.3	7.6	1.7	24.3	26.8	35.0	3.2	100
6	1.1	7.1	1.9	20.9	25.5	40.6	2.8	100
7	0.4	6.6	1.9	23.2	22.6	44.3	1.0	100
8	0.0	6.6	2.0	29.2	21.6	40.6	0.0	100
9	0.0	8.9	2.3	30.2	21.0	37.5	,0.0	100
10	0.0	10.7	2.7	31.7	21.8	33.1	0.0	100
11	0.0	11.7	2.9	33.4	22.0	30.0	0.0	100
12	0.0	11.9	2.9	30.3	22.1	32.8	0.0	100
13	0.0	10.6	2.9	30.6	21.8	34.0	0.0	100
14	0.0	11.2	2.9	31.5	22.6	31.8	0.0	100
15	0.0	11.1	2.8	30.8	21.6	33.7	0.0	100
16	0.0	10.8	2.8	28.8	20.4	37.2	0.0	100
17	0.0	10.9	2.7	24.5	20.1	41.7	0.0	100
18	0.0	9.5	2.4	20.7	<u> 19.4</u>	48.1	0.0	100
19	0.2	8.9	1.8	18.6	17.5	53.1	0.0	100
20	0.6	8.8	1.7	21.0	17.4	50.5	0.0	100
21	0.7	8.0	1.5	21.7	18.4	49.6	0.0	100
2 2	8.0	5.9	1.5	23.6	18.9	49.3	0.1	100
23	1.0	7.2	1.8	24.2	23.8	41.6	0.3	100
24	1.3	8.0	1.8	26.2	25.5	36.5	0.6	100
MIN	0.0	5.9	1.5	18.6	17.4	30.0	0.0	100
MAX	1.5	11.9	2.9	33.4	29.7	53.1	3.6	100
MEAN	0.6	9.0	2.2	25.9	22.7	38.9	0.7	100

The instantaneous net-to-system peak of 168.2 MW occurred on February 25, 2002 @ 19:00.

Table 4.6 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level

March 2002

								System
HOUR	F	G	H/K	J	Р	R	U	Total
1	1.5	8.1	1.5	29.5	25.0	33.6	0.7	100 %
2	1.7	9.2	1.7	28.5	28.0	30.0	1.0	100
3	1.6	8.5	1.6	24.9	27.1	32.8	3.4	100
4	1.6	8.9	1.7	28.6	27.8	27.2	4.1	100
5	1.6	8.8	1.7	26.4	27.8	29.8	3.9	100
6	1.2	7.3	1.7	27.1	24.3	36.1	2.3	100
7	0.0	5.8	1.6	25.0	19.1	48.2	0.4	100
8	0.0	6.9	1.8	31.9	19.7	39.7	0.0	100
9	0.0	8.6	2.4	37.1	19.7	32.3	0.0	100
10	0.0	9.9	2.7	34.7	19.3	33.4	0.0	100
11	0.0	11.4	2.8	36.3	20.4	29.1	0.0	100
12	0.0	12.0	3.1	36.0	21.0	27.9	0.0	100
13	0.0	11.2	2.9	36.1	19.4	30.4	0.0	100
14	0.0	11.4	3.3	34.3	20.0	31.1	0.0	100
15	0.0	12.8	3.5	36.2	20.7	26.7	0.0	100
16	0.0	11.9	3.3	34.2	19.6	31.0	0.0	100
17	0.0	12.0	3.0	28.8	20.5	35.7	0.0	100
18	0.0	9.5	2.3	22.6	18.5	47.0	0.0	100
19	0.1	9.6	1.9	22.9	18.2	47.3	0.0	100
20	0.7	9.2	1.6	20.1	17.2	51.1	0.0	100
21	0.8	9.0	1.5	24.5	18.6	45.5	0.0	100
22	0.9	7.9	1.6	29.8	19.6	39.9	0.3	100
23	1.1	7.6	1.7	27.4	22.8	38.9	0.6	100
24	1.3	7.7	1.6	27.1	24.1	37.2	1.0	100
MIN	0.0	5.8	1.5	20.1	17.2	26.7	0.0	100
MAX	1.7	12.8	3.5	37.1	28.0	51.1	4.1	100
MEAN	0.6	9.4	2.2	29.6	21.6	35.9	0.7	100

The instantaneous net-to-system peak of 164.5 MW occurred on March 4, 2002 @ 19:04.

Table 4.6 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level April 2002

								System
HOUR	<u> </u>	G	H/K	J	P	R	υ	Total
1	1.2	7.1	1.8	29.2	24.7	35.4	0.6	100 %
2	1.3	7.5	1.9	30.4	26.5	31.7	0.7	100
3	1.4	7.6	1.9	29.4	28.3	30.5	0.7	100
4	1.4	8.2	2.0	27.1	29.3	31.2	0.7	100
5	1.4	7.8	2.1	26.7	28.8	30.5	2.8	100
6	0.7	6.6	2.1	27.3	25.8	35.5	2.0	100
7	0.0	6.1	2.1	26.6	23.0	42.0	0.2	100
8	0.0	6.5	2.4	29.4	20.3	41.3	0.0	100
9	0.0	9.3	3.2	36.9	22.1	28.5	0.0	100
10	0.0	10.7	3.6	37.2	22.0	26.5	0.0	100
11	0.0	10.8	3.4	37.2	21.6	27.0	0.0	100
12	0.0	11.1	3.4	34.9	21.9	28.7	0.0	100
13	0.0	11.1	3.4	36.8	21.6	27.2	0.0	100
14	0.0	11.1	3.4	36.8	21.6	27.2	0.0	100
15	0.0	11.5	3.3	36.3	21.7	27.2	0.0	100
16	0.0	11.2	3.3	32.8	21.9	30.8	0.0	100
17	0.0	10.0	3.1	29.3	22.1	35.5	0.0	100
18	0.0	8.5	2.7	25.3	22.7	40.8	0.0	100
19	0.0	7.6	2.2	26.7	21.7	41.8	0.0	100
20	0.6	9.0	1.6	24.3	18.5	46.0	0.0	100
21	0.7	8.1	1.7	24.2	19.2	46.1	0.0	100
22	0.8	7.1	1.7	26.7	21.4	41.9	0.4	100
23	1.0	6.9	1.8	26.0	25.3	38.2	0.9	100
24	1.2	7.2	1.8	28.1	28.5	32.1	1.0	100
MIN	0.0	6.1	1.6	24.2	18.5	26.5	0.0	100
MAX	1.4	11.5	3.6	37.2	29.3	46.1	2.8	100
MEAN	0.5	8.7	2.5	30.2	23.4	34.3	0.4	100

The instantaneous net-to-system peak of 163.3 MW occurred on April 10, 2002 @ 19:07.

Table 4.6 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level May 2002

								System
HOUR	F	G	H/K	J	P	R	U	Total
1	1.5	8.1	1.8	30.6	26.9	30.8	0.3	100 %
2 3	1.5	8.0	1.8	27.7	27.5	33.2	0.3	100
3	1.6	8.5	1.9	29.0	28.6	29.9	0.3	100
4	1.6	8.6	2.0	29.6	27.8	30.1	0.3	100
5 6	1.4	7.8	1.9	27.9	26.8	31.9	2.2	100
6	0.4	6.8	2.1	28.4	24.6	36.0	1.8	100
7	0.0	5.8	2.1	27.1	21.5	43.5	0.0	100
8	0.0	7.3	2.6	30.8	21.6	37.7	0.0	100
9	0.0	9.7	2.8	36.1	21.0	30.4	0.0	100
10	0.0	10.6	2.9	34.9	20.3	31.3	0.0	100
11	0.0	10.3	2.8	34.0	20.3	32.6	0.0	100
12	0.0	11.2	3.0	35.7	21.2	28.9	0.0	100
13	0.0	10.8	2.9	33.3	20.2	32.7	0.0	100
14	0.0	11.0	3.0	33.1	20.2	32.6	0.0	100
15	0.0	11.6	3.2	34.5	21.2	29.5	0.0	100
16	0.0	11.0	2.9	29.4	19.9	36.7	0.0	100
17	0.0	10.8	2.8	27.5	21.7	37.2	0.0	100
18	0.0	8.8	2.4	20.8	18.9	49.0	0.0	100
19	0.0	7.5	1.9	19.9	17.4	53.4	0.0	100
20	0.6	7.7	1.8	22.3	17.8	49.7	0.0	100
21	8.0	7.8	1.8	25.0	18.6	46.0	0.0	100
22	0.9	6.5	1.7	27.4	19.9	43.1	0.4	100
23	1.2	7.5	1.8	26.2	23.8	38.9	0.7	100
24	1.3	7.8	1.9	26.1	25.3	36.9	0.7	100
MIN	0.0	5.8	1.7	19.9	17.4	28.9	0.0	100
MAX	1.6	11.6	3.2	36.1	28.6	53.4	2.2	100
MEAN	0.5	8.8	2.3	29.1	22.2	36.8	0.3	100

The instantaneous system peak of 159.5 MW occurred on May 13, 2002 @ 18:48.

Table 4.6 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level June 2002

								System
HOUR	F	G	<u>H/K</u>	J	P	R	U	Total
1	1.4	7.4	1.8	29.6	25.2	34.0	0.6	100 %
2 3	1.5	7.8	1.8	29.3	26.2	32.6	0.7	100
	1.6	8.3	1.9	30.5	27.6	29.2	0.9	100
4	1.5	7.8	1.8	32.0	27.0	29.0	0.9	100
5 6	1.4	7.4	1.8	30.3	26.1	30.6	2.4	100
6	0.4	6.9	2.1	31.2	25.4	31.7	2.3	100
7	0.0	7.0	2.1	28.1	23.7	38.6	0.4	100
8	0.0	9.7	2.8	28.7	23.3	35.5	0.0	100
9	0.0	10.3	3.0	29.4	20.3	37.0	0.0	100
10	0.0	11.7	3.7	32.7	23.5	28.4	0.0	100
11	0.0	12.7	3.7	33.9	22.7	27.0	0.0	100
12	0.0	12.2	3.6	32.1	20.9	31.2	0.0	100
13	0.0	11.8	3.6	33.4	21.6	29.7	0.0	100
14	0.0	12.6	4.0	32.4	22.6	28.5	0.0	100
15	0.0	12.0	4.0	32.5	23.3	28.1	0.0	100
16	0.0	12.9	3.6	29.2	21.4	32.9	0.0	100
17	0.0	12.2	3.7	25.2	22.7	36.3	0.0	100
18	0.0	10.9	3.3	23.2	23.0	39.7	0.0	100
19	0.0	8.9	2.3	19.5	18.7	50.6	0.0	100
20	0.5	10.2	2.1	24.5	20.5	42.2	0.0	100
21	0.9	9.8	1.9	25.0	19.9	42.5	0.0	100
22	0.9	7.0	1.7	26.5	20.7	42.7	0.3	100
23	1.1	6.9	1.9	24.2	22.6	42.8	0.4	100
24	1.3	7.7	2.0	26.2	25.0	37.2	0.5	100
MIN	0.0	6.9	1.7	19.5	18.7	27.0	0.0	100
MAX	1.6	12.9	4.0	33.9	27.6	50.6	2.4	100
MEAN	0.5	9.7	2.7	28.7	23.1	34.9	0.4	100

The instantaneous system peak of 160.1 MW occurred on June 25, 2002 @ 19:50.

Table 4.6 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level

July 2002

Hour	F	G	H/K	J	Р	R	U	System Totai
1	1.2	7.2	1.7	28.3	25.4	35.6	0.6	100 %
2	1.3	7.7	1.8	27.1	27.0	34.5	0.6	100
3	1.4	8.7	1.9	25.6	28.6	33.1	0.6	100
4	1.4	8.0	1.9	27.1	28.2	32.8	0.6	100
5	1.3	7.6	2.1	24.9	27.4	34.5	2.2	100
6	0.5	7.0	2.0	25.8	26.1	36.4	2.0	100
7	0.0	6.3	2.3	28.1	23.8	39.3	0.2	100
8	0.0	8.8	2.8	31.4	23.5	33.4	0.0	100
9	0.0	11.3	3.2	31.9	22.2	31.5	0.0	100
10	0.0	12.2	3.3	31.9	21.7	30.9	0.0	100
11	0.0	12.6	3.5	32.3	22.8	28.8	0.0	100
12	0.0	12.7	3.5	33.4	21.8	28.5	0.0	100
13	0.0	12.0	3.4	32.3	21.1	31.3	0.0	100
14	0.0	12.5	3.5	32.9	21.3	29.7	0.1	100
15	0.0	12.4	3.6	33.3	22.5	28.4	0.0	100
16	0.0	11.7	3.4	30.7	21.9	32.3	0.0	100
17	0.0	12.6	3.4	29.9	23.5	30.5	0.0	100
18	0.0	10.6	2.9	23.7	23.1	39.7	0.0	100
19	0.0	8.5	2.1	24.1	20.7	44.6	0.0	100
20	0.4	8.5	1.8	23.9	20.0	45.4	0.0	100
21	0.7	7.7	1.7	26.3	20.8	42.8	0.0	100
22	0.7	6.3	1.6	28.1	20.3	42.7	0.2	100
23	0.9	6.6	1.7	28.2	23.9	38.3	0.4	100
24	1.1	7.2	1.9	27.2	25.6	36.7	0.3	100
MIN	0.0	6.3	1.6	23.7	20.0	28.4	0.0	100
MAX	1.4	12.7	3.6	33.4	28.6	45.4	2.2	100
MEAN	0.5	9.4	2.5	28.7	23.5	35.1	0.3	100

The instantaneous net-to-system peak of 166.0 MW occurred on July 29, 2002 @ 19:40.

Table 4.7 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Net-to-System Generation Level

August 2001

								Constructed	Actual	
								System	System	Percent
HOUR	F	G_	H	J	P	R		Total	Total	Error
1	1,183	6,563	1,790	21,043	23,362	28,558	946	83,446	89,154	- 6.4
2	1,183	6,697	1,704	27,550	23,170	24,903	900	86,109	85,609	+ 0.6
3	1,183	6,226	1,683	23,857	23,295	25,849	944	83,037	83,739	- 0.8
4	1,183	6,217	1,703	20,706	23,031	25,797	917	79,554	82,977	- 4.1
5	1,183	6,294	1,845	22,157	23,223	36,077	925	91,704	85,926	+ 6.7
6	710	6,935	2,300	33,030	25,639	39,011	933	108,559	98,637	+ 10.1
7	0	7,413	2,747	36,406	27,129	51,756	704	126,154	119,863	+ 5.2
8	0	9,971	3,844	42,216	28,321	48,967	231	133,550	132,428	+ 0.8
9	0	14,736	4,792	58,060	30,913	38,486	219	147,206	146,001	+ 0.8
10	0	17,736	5,274	53,135	33,109	40,214	227	149,695	152,834	- 2.1
11	0	19,091	5,487	50,683	33,726	43,029	239	152,255	154,631	- 1.5
12	0	20,581	5,779	49,360	34,087	43,752	230	153,788	154,705	- 0.6
13	0	20,492	5,582	50,352	33,554	42,008	229	152,217	154,707	- 1.6
14	0	21,144	5,764	52,195	33,404	42,803	257	155,567	154,966	+ 0.4
15	0	20,285	5,564	51,576	33,390	42,294	258	153,368	153,970	- 0.4
16	0	20,111	5,603	46,386	33,437	46,977	208	152,722	154,536	- 1.2
17	0	17,050	5,188	42,841	33,995	45,957	182	145,213	153,937	- 5.7
18	0	14,234	4,496	35,960	32,780	61,298	181	148,949	151,040	- 1.4
19	0	15,643	3,573	33,926	32,655	69,978	180	155,956	156,354	- 0.3
20	947	15,318	3,185	36,895	32,693	86,644	181	175,862	165,403	+ 6.3
21	1,183	12,419	2,935	35,470	31,696	75,319	181	159,203	152,805	+ 4.2
22	1,183	9,895	2,637	32,503	30,485	55,165	642	132,509	138,992	- 4.7
23	1,183	8,280	2,196	26,755	29,178	45,216	963	113,771	120,687	- 5.7
24	1,183	7,304	2,013	23,485	26,671	32,827	963	94,446	104,527	- 9.6
TOTAL	12,306	310,633	87,683	906,548	712,942	1,092,886	11,842	3,134,840	3,148,429	- 0.4
MIN	0	6,217	1,683	20,706	23,031	24,903	180	79,554	82,977	- 9.6
MAX	1,183	21,144	5,779	58,060	34,087	86,644	963	175,862	165,403	+ 10.1
MEAN	513	12,943	3,653	37,773	29,706	45,537	493	130,618	131,185	- 0.5

Table 4.7 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK Non-normalized at the Net-to-System Generation Level

September 2001

								Constructed System	Actual System	Percent
HOUR	F	G	Н	J	P	R	U	Total	Total	Error
1	1,121	6,727	1,876	21,279	22,855	26,475	978	81,311	87,966	- 7.6
2	1,121	6,775	1,774	20,614	22,024	24,582	980	77,871	83,921	- 7.2
3	1,121	6,494	1,688	18,294	21,245	21,349	992	71,182	81,787	- 13.0
4	1,121	6,227	1,757	19,493	21,822	22,486	1,002	73,909	82,265	- 10.2
5	1,121	6,436	1,932	20,423	22,962	27,232	2,713	82,819	86,999	- 4.8
6	804	6,597	2,362	23,425	24,974	39,146	3,027	100,334	97,598	+ 2.8
7	0	7,448	2,688	28,630	25,422	53,630	650	118,467	115,313	+ 2.7
8	0	10,041	3,560	44,050	27,265	48,350	5	133,272	127,499	+ 4.5
9	0	15,107	4,507	51,499	29,514	40,415	5	141,048	138,242	+ 2.0
10	0	17,459	5,052	52,998	30,876	40,162	5	146,552	143,974	+ 1.8
11	0	18,529	5,368	52,824	31,736	39,481	5	147,943	147,001	+ 0.6
12	0	18,022	5,477	50,281	31,354	40,124	5	145,264	146,197	- 0.6
13	0	18,577	5,463	51,577	30,550	44,157	5	150,328	144,904	+ 3.7
14	0	17,405	5,625	53,316	31,202	41,176	5	148,729	146,499	+ 1.5
15	σ	16,857	5,598	54,172	31,552	40,367	5	148,551	146,047	+ 1.7
16	0	16,636	5,462	48,790	31,561	43,736	5	146,189	146,106	+ 0.1
17	0	15,772	5,335	41,964	30.241	51,646	5	144,964	145,215	- 0,2
18	0	12,866	4,719	33,820	29,621	72,135	5	153,165	143,518	+ 6.7
19	243	13,550	3,662	36,479	29,819	74,108	5	157,866	157,120	+ 0.5
20	1,121	14,640	3,175	38,193	29,325	69,837	5	156,297	155,782	+ 0.3
21	1,121	11,854	2,875	39,313	27,857	67,810	5	150,835	143,876	+ 4.8
22	1,121	9,053	2,601	37,321	27,080	54,304	901	132,382	129,152	+ 2.5
23	1,121	8,062	2,279	27,920	25,548	42,899	1,065	108,894	113,633	- 4,2
24	1,121	7,384	2,063	24,252	24,119	30,785	1,000	90,723	101,406	- 10.5
TOTAL	12,259	288,518	86,897	890,927	660,522	1,056,393	13,379	3,008,897	3,012,023	- 0.1
MIN	0	6,227	1,688	18,294	21,245	21,349	5	71,182	81,787	- 13.0
MAX	1,121	18,577	5,625	54,172	31,736	74,108	3,027	157,866	157,120	+ 6.7
MEAN	511	12,022	3,621	37,122	27,522	44,016	557	125,371	125,501	- 0.9

Table 4.7 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK Non-normalized at the Net-to-System Generation Level

October 2001

								Constructed System	Actual System	Percent
HOUR	F	G	H	J	P	R	U	Total	Total	Error
1	1,026	7,086	1,560	20,702	21,528	32,430	683	85,014	86,130	- 1.3
2	1,026	6,753	1,493	22,031	21,158	26,110	652	79,221	82,085	- 3.5
3	1,026	6,643	1,440	19,586	21,522	23,090	1,995	75,302	81,523	- 7.6
4	1,026	6,629	1,469	19,257	21,262	25,011	2,663	77,316	81,225	- 4.8
5	1,026	6,794	1,576	19,602	22,023	29,664	2,674	83,360	84,032	- 0.8
6	872	7,408	2,062	27,338	23,604	36,514	2,725	100,522	95,863	+ 4.9
7	0	7,652	2,479	31,936	24,949	55,485	1,864	124,366	115,110	+ 8.0
8	0	11,036	3,500	40,266	26,223	46,320	4	127,350	126,081	+ 1.0
9	0	14,299	4,546	47,380	29,039	40,984	4	136,251	136,112	+ 0.1
10	0	17,231	5,248	52,679	30,412	41,506	4	147,080	143,010	+ 2.8
11	0	18,853	5,162	55,125	31,571	39,920	4	150,635	147,631	+ 2.0
12	0	19,107	5,306	53,683	31,805	39,428	4	149,334	147,679	+ 1.1
13	0	19,281	5,287	57,799	32,059	44,630	4	159,060	148,379	+ 7.2
14	0	18,490	5,342	52,974	32,693	43,180	4	152,683 _	148,714	+ 2.7
15	0	17,644	5,425	51,082	32,295	41,411	4	147,861	147,582	+ 0.2
16	0	17,342	5,567	48,018	31,757	52,219	4	154,908	148,250	+ 4.5
17	0	15,087	4,955	40,733	31,113	58,138	4	150,031	147,794	+ 1.5
18	0	13,117	4,290	34,144	30,027	68,166	. 4	149,749	148,723	+ 0.7
19	650	13,586	3,827	34,879	30,505	77,672	4	161,124	162,191	- 0.7
20	1,026	15,634	3,181	35,971	29,923	75,457	4	161,196	157,515	+ 2.3
21	1,026	13,899	2,689	38,559	28,334	78,432	4	162,942	144,505	+ 12.8
22	1,026	10,215	2,481	37,164	27,626	56,251	459	135,222	130,648	+ 3.5
23	1,026	8,273	2,137	29,682	26,593	40,523	866	109,100	114,520	- 4.7
24	1,026	7,454	1,866	27,062	25,469	32,608	867	96,351	100,871	- 4.5
TOTAL	11,780	299,510	82,888	897,654	663,492	1,105,151	15,506	3,075,980	3,026,173	+ 1.6
MIN	0	6,629	1,440	19,257	21,158	23,090	4	75,302	81,225	- 7.6
MAX	1,026	19,281	5,567	57,799	32,693	78,432	2,725	162,942	162,191	+ 12.8
MEAN	491	12,480	3,454	37,402	27,645	46,048	646	128,166	126,091	+ 1.1

Table 4.7 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Net-to-System Generation Level

November 2001

HOUR	F	G	н	J	P	R	U	Constructed System Total	Actual System Total	Percent Error
1	1,038	6,240	1,481	22,754	20,747	25,473	696	78,428	83,230	- 5.8
2	1,038	6,497	1,487	24,740	20,445	21,838	696	76,740	79,206	- 3.1
3	1,038	6,189	1,445	20,808	21,022	19,557	2,332	72,392	79,080	- 8.5
4	1,038	5,950	1,412	20,082	21,279	21,846	2,944	74,551	79,935	- 6.7
5	1,038	6,222	1,536	21,298	22,104	27,728	2,881	82,807	83,898	- 1.3
6	1,038	7,069	1,992	30,202	24,331	30,786	2,815	98,233	96,031	+ 2.3
7	311	7,446	2,246	30,056	25,895	54,269	519	120,741	111,356	+ 8.4
8	0	9,951	2,877	39,081	26,370	52,932	4	131,215	125,991	+ 4.1
9	0	13,612	3,923	50,261	28,195	43,158	4	139,152	135,287	+ 2.9
10	0	18,758	4,574	54,298	29,571	41,357	4	148,562	142,941	+ 3.9
11	0	18,547	4,826	48,600	30,323	47,592	4	149,892	146,174	+ 2.5
12	0	17,833	5,048	51,468	30,620	41,887	4	146,860	147,229	- 0.3
13	0	18,162	5,158	55,875	31,027	39,875	4	150,100	147,895	+ 1.5
14	0	18,029	5,255	54,538	30,616	45,427	4	153,869	146,874	+ 4.8
15	0	17,668	5,301	49,399	29,846	44,424	4	146,642	145,458	+ 0.8
16	0	17,613	5,224	52,400	29,665	49,260	4	154,166	146,361	+ 5.3
17	0	15,841	4,832	45,830	29,702	47,214	4	143,422	147,833	- 3.0
18	0	14,120	3,998	35,516	29,258	69,022	4	151,918	151,938	+ 0.0
19	917	14,835	3,356	37,358	29,596	85,598	4	171,664	165,023	+ 4.0
50	1,038	14,764	2,942	38,460	28,221	86,469	4	171,899	153,862	+ 11.7
21	1,038	12,441	2,632	32,527	26,680	64,213	4	139,535	140,976	- 1.0
22	1,038	9,303	2,313	31,727	25,906	55,039	481	125,806	128,238	- 1.9
23	1,038	7,726	2,041	30,613	25,233	37,111	873	104,636	113,037	- 7.4
24	1,038	7,020	1,729	26,445	23,988	29,410	870	90,500	97,086	- 6.8
TOTAL	12,643	291,837	77,627	904,335	640,639	1,081,486	15,167	3,023,733	2,994,937	+ 1.0
MIN	0 ,	5,950	1,412	20,082	20,445	19,557	4	72,392	79,080	- 8.5
MAX	1,038	18,758	5,301	55,875	31,027	86,469	2,944	171,899	165,023	+ 11.7
MEAN	527	12,160	3,234	37,681	26,693	45,062	632	125,989	124,789	+ 0.3

Table 4.7 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

Non-normalized at the Net-to-System Generation Level

December 2001

							•	Constructed	Actual	
								System	System	Percent
HOUR	F	G	H	J	P	R	υ	Total	Total	Error
1	1,064	6,563	1,565	23,698	21,587	27,421	832	82,729	88,205	- 6.2
2	1,064	6,334	1,528	18,560	21,439	23,236	827	72,987	82,616	- 11.7
3	1,064	6,119	1,467	17,242	21,230	24,300	558	71,980	79,589	- 9.6
4	1,064	6,262	1,442	18,131	21,589	26,461	527	75,476	79,263	- 4.8
5 6	1,064	6,255	1,565	18,296	22,496	32,796	1,810	84,282	84,932	- 0.8
6	1,064	6,719	2,051	23,593	23,472	32,747	2,236	91,881	96,682	- 5.0
7	390	7,292	2,454	27,490	25,334	54,377	631	117,969	113,644	+ 3.8
8	0	10,059	3,144	35,496	26,147	51,038	4	125,888	127,667	- 1.4
9	0	15,418	3,884	43,119	28,010	40,793	4	131,228	137,235	- 4.4
10	0	16,607	4,337	48,722	29,416	43,820	4	142,906	142,994	- 0.1
11	0	17,884	4,693	46,039	30,291	42,380	4	141,292	144,531	- 2.2
12	0	17,564	5,009	46,764	30,851	45,259	4	145,451	145,932	- 0.3
13	0	17,238	5,033	51,238	30,221	43,486	4	147,219	144,963	+ 1.6
14	0	16,772	5,058	53,082	30,415	43,153	4	148,485	144,345	+ 2.9
15	0	16,705	4,821	41,721	30,237	45,430	4	138,918	142,554	- 2.6
16	0	16,249	4,665	43,060	29,625	51,801	4	145,403	142,145	+ 2.3
17	0	14,421	4,286	40,861	29,279	64,004	4	152,855	144,250	+ 6.0
18	0	11,854	3,422	31,685	28,672	74,762	4	150,400	151,904	- 1. <u>0</u>
19	886	13,361	2,971	28,854	28,605	97,767	4	172,448	170,191	+ 1.3
20	1,064	12,680	2,631	33,634	27,756	87,613	4	165,381	162,060	+ 2.0
21	1,064	11,429	2,408	30,999	26,562	75,430	4	147,895	143,317	+ 3.2
22	1,064	9,718	2,172	30,749	25,543	60,622	586	130,454	130,350	+ 0.1
23	1,064	8,327	1,905	31,531	24,074	46,545	820	114,265	116,913	- 2.3
24	1,064	7,201	1,744	30,251	22,547	36,349	819	99,975	98,701	+ 1.3
TOTAL	12,976	279,033	74,255	814,815	635,397	1,171,591	9,701	2,997,768	3,014,982	- 0,6
MIN	0	6,119	1,442	17,242	21,230	23,236	4	71,980	79,263	- 11.7
MAX	1,064	17,884	5,058	53,082	30,851	97,767	2,236	172,448	170,191	+ 6.0
MEAN	541	11,626	3,094	33,951	26,475	48,816	404	124,907	125,624	- 1.2

Table 4.7 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

Non-normalized at the Net-to-System Generation Level

January 2002

							(Constructed	Actual	
		_			_	_		System	System	Percent
HOUR	F	G	<u> </u>	<u>J</u>	P	R	υ	Total	Totai	Error
1	997	6,507	1,439	24,203	21,361	26,759	906	82,173	85,520	- 3.9
2	997	6,167	1,389	20,710	20,913	23,508	890	74,573	80,365	- 7.2
3	997	6,105	1,369	20,058	20,564	23,527	2,441	75,060	79,002	- 5.0
4	997	6,178	1,358	20,591	21,092	26,373	3,149	79,739	79,225	+ 0.6
5	997	6,291	1,470	20,992	21,819	29,906	3,118	84,593	82,618	+ 2.4
6	997	6,446	1,855	24,639	23,397	41,446	2,840	101,618	93,811	+ 8.3
7	532	7,100	2,243	31,676	25,825	46,327	771	114,472	105,677	+ 8.3
8	0	9,427	3,008	34,459	26,698	50,969	5	124,565	124,689	- 0.1
9	0	13,735	3,842	40,925	28,577	48,467	5	135,551	133,552	+ 1.5
10	0	16,035	4,378	43,842	30,371	49,124	5	143,754	142,107	+ 1.2
11	0	17,168	4,755	46,910	31,228	47,388	5	147,454	146,697	+ 0.5
12	0	17,718	4,873	44,855	31,203	39,875	5	138,528	147,093	- 5.8
13	0	17,369	5,051	48,045	31,354	48,273	5	150,096	146,511	+ 2.4
14	0	15,930	5,178	49,887	30,798	47,032	5	148,830	146,012	+ 1.9
15	0	16,081	5,062	44,484	30,826	50,672	5	147,129	144,174	+ 2.0
16	0	15,903	5,121	45,691	30,799	57,321	5	154,839	144,116	+ 7.4
17	0	13,677	4,747	40,775	30,466	59,215	5	148,887	144,466	+ 3.1
18	0	12,133	3,770	30,3 <u>98</u>	29,912	72,485	5	148,704	143,683	+ 3. <u>5</u>
19	532	13,505	3,099	31,074	29,626	94,679	5	172,518	164,882	+ 4.6
20	997	12,565	2,730	36,454	29,238	76,370	5	158,359	160,090	- 1.1
21	997	11,566	2,329	31,496	27,661	66,396	5	140,449	143,359	- 2.0
22	997	9,301	2,049	28,273	26,629	58,555	459	126,263	129,955	- 2.8
23	997	7,769	1,830	31,241	25,018	44,002	916	111,773	114,255	- 2.2
24	997	7,428	1,590	26,695	24,157	33,630	952	95,448	97,672	- 2,3
TOTAL	12,029	272,104	74,534	818,372	649,530	1,162,300	16,509	3,005,376	2,979,531	+ 0.9
MIN	0	6,105	1,358	20,058	20,564	23,508	5	74,573	79,002	- 7.2
MAX	997	17,718	5,178	49,887	31,354	94,679	3,149	172,518	164,882	+ 8.3
MEAN	501	11,338	3,106	34,099	27,064	48,429	688	125,224	124,147	+ 0.6

Table 4.7 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK Non-normalized at the Net-to-System Generation Level February 2002

								Constructed	Actual	
	_	_		_	_	_		System	System	Percent
<u>HOUR</u>	F	G	<u>H</u>	J	P	R	U	Total	Total	Error
1	1,074	6,377	1,379	18,194	21,010	26,133	816	74,983	81,132	- 7.6
2	1,074	6,101	1,296	18,642	20,783	21,357	827	70,080	77,054	- 9.0
3	1,074	5,902	1,304	16,640	20,857	25,164	2,299	73,239	75,993	- 3.6
4	1,074	6,043	1,334	17,400	21,400	24,700	2,710	74,661	76,772	- 2.8
5	1,074	6,352	1,444	20,288	22,385	29,226	2,702	83,471	81,004	+ 3.0
6	1,074	6,831	1,877	20,216	24,694	39,267	2,703	96,661	94,431	+ 2.4
7	430	7,808	2,242	27,429	26,661	52,359	1,177	118,106	113,309	+ 4.2
8	0	8,374	2,549	36,740	27,187	51,096	4	125,950	125,988	+ 0.0
9	0	12,194	3,203	41,445	28,873	51,536	4	137,255	133,318	+ 3.0
10	0	14,725	3,692	43,700	30,054	45,539	4	137,715	138,297	- 0.4
11	0	16,298	4,016	46,563	30,689	41,724	4	139,295	140,572	- 0.9
12	0	16,756	4,121	42,655	31,073	46,156	4	140,765	139,838	+ 0.7
13	0	14,927	4,012	42,983	30,638	47,771	4	140,336	137,408	+ 2.1
14	0	15,157	3,916	42,463	30,457	42,935	4	134,933	137,376	<i>-</i> 1.8
15	0	15,265	3,779	42,215	29,645	46,167	4	137,075	134,916	+ 1.6
16	0	15,180	3,957	40,402	28,599	52,270	4	140,412	135,588	+ 3.6
17	0	15,446	3,883	34,719	28,513	59,171	4	141,736	139,281	+ 1.8
18	0	13,767	3,530	30,063	28,129	69,844	4	145,338	145,737	- 0.3
19	269	14,494	2,914	30,365	28,618	86,898	4	163,562	159,024	+ 2.9
20	1,074	14,570	2,768	34,670	28,688	83,496	4	165,270	161,189	+ 2.5
21	1,074	12,033	2,304	32,653	27,713	74,566	4	150,348	143,866	+ 4.5
22	1,074	8,251	2,139	33,186	26,628	69,509	112	140,900	124,901	+ 12.8
23	1,074	7,408	1,896	24,817	24,410	42,594	307	102,505	108,000	- 5.1
24	1,074	6,623	1,483	21,720	21,154	30,248	535	82,836	87,847	- 5.7
TOTAL	12,512	266,882	65,039	760,169	638,857	1,159,724	14,249	2,917,431	2,892,842	+ 0.9
MIN	0	5,902	1,296	16,640	20,783	21,357	4	70,080	75,993	- 9.0
MAX	1,074	16,756	4,121	46,563	31,073	86,898	2,710	165,270	161,189	+ 12.8
MEAN	521	11,120	2,710	31,674	26,619	48,322	594	121,560	120,535	+ 0.3

Table 4.7 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

Non-normalized at the Net-to-System Generation Level

March 2002

								Constructed System	Actual System	Percent
HOUR	F	G	н	<u>J</u>	P	R	<u> </u>	Total	Total	Error
1	1,145	6,082	1,161	22,155	18,757	25,223	562	75,086	80,299	- 6.5
2	1,145	6,299	1,182	19,583	19,280	20,601	676	68,767	76,792	- 10.5
3	1,145	6,107	1,150	17,952	19,532	23,632	2,465	71,983	76,527	- 5.9
4	1,145	6,190	1,152	19,929	19,398	18,985	2,889	69,688	76,357	- 8.7
5	1,145	6,455	1,231	19,472	20,473	21,985	2,900	73,662	81,109	- 9.2
6	1,145	6,776	1,575	25,179	22,595	33,609	2,123	93,002	93,996	- 1.1
7	38	7,340	1,972	31,692	24,180	61,187	485	126,895	116,717	+ 8.7
8	0	8,525	2,265	39,402	24,300	49,063	4	123,559	126,717	- 2.5
9	0	11,510	3,155	49,579	26,283	43,192	4	133,722	131,955	+ 1.3
10	0	13,957	3,769	48,891	27,243	46,992	4	140,857	136,627	+ 3.1
11	0	15,688	3,858	49,689	27,928	39,891	4	137,058	137,677	- 0.4
12	0	16,166	4,177	48,626	28,412	37,733	4	135,119	136,459	- 1.0
13	0	16,419	4,253	52,737	28,323	44,414	4	146,151	136,574	+ 7.0
14	0	16,237	4,623	48,689	28,383	44,218	4	142,155	135,867	+ 4.6
15	0	16,841	4,654	47,688	27,238	35,206	4	131,631	132,606	- 0.7
16	0	16,533	4,534	47,556	27,204	43,129	4	138,960	133,211	+ 4.3
17	0	16,055	3,944	38,378	27,322	47,586	4	133,289	135,185	- 1.4
18	0	14,057	3,437	33,396	27,418	69,514	4	147,826	140,886	+ 4.9
19	95	14,574	2,862	<u>34,810</u>	27,685	71,706	4	151,737	154,113	- 1.5
20	1,145	14,833	2,578	32,320	27,575	81,962	4	160,418	157,317	+ 2.0
21	1,145	12,640	2,148	34,244	26,031	63,712	4	139,924	142,613	- 1.9
22	1,145	9,958	1,994	37,660	24,811	50,347	381	126,297	127,532	- 1.0
23	1,145	7,717	1,735	27,912	23,247	39,652	603	102,012	107,318	- 4.9
24	1,145	7,007	1,479	24,583	21,809	33,714	878	90,615	91,976	- 1.5
TOTAL	12,729	273,966	64,886	852,121	595,430	1,047,254	14,026	2,860,413	2,866,431	- 0.2
MIN	0	6,082	1,150	17,952	18,757	18,985	4	68,767	76,357	- 10.5
MAX	1,145	16,841	4,654	52,737	28,412	81,962	2,900	160,418	157,317	+ 8.7
MEAN	530	11,415	2,704	35,505	24,810	43,636	584	119,184	119,435	- 1.0

Table 4.7 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

Non-normalized at the Net-to-System Generation Level

April 2002

HOUR	F	G	н	ن	P	R	U	Constructed System Total	Actual System Total	Percent Error
1	1,095	6,471	1,613	26,810	22.692	32,503	583	91,767	90,422	+ 1.5
2	1,095	6,291	1,576	25,337	22,113	26,413	569	83,394	84,798	- 1.7
3	1,095	6,022	1,519	23,167	22,306	24,043	572	78,725	81,777	- 3.7
4	1,095	6,188	1,553	20,553	22,276	23,709	540	75,914	81,028	- 6.3
5	1,095	6,289	1,661	21,535	23,193	24,565	2,225	80,564	87.044	- 7.4
6	684	6,518	2,031	26,767	25,332	34,829	2,006	98,167	98,132	+ 0.0
7	0	6,953	2,448	30,397	26,264	48,064	264	114,390	118.864	- 3.8
8	0	9,006	3,287	40,469	28,007	56,896	4	137,670	131,340	+ 4.8
9	0	12,575	4,359	50,105	30,060	38,796	4	135,898	141,381	- 3.9
10	0	15,593	5,293	54 129	32,028	38,631	4	145,678	146,722	- 0.7
11	0	16,440	5,194	56.862	32,994	41,284	4	152,778	150,828	+ 1.3
12	0	16,866	5,141	53,150	33,302	43,742	4	152,205	151,065	+ 0.8
13	0	17,258	5,295	57,365	33,617	42,379	4	155,919	151,424	+ 3.0
14	0	17,258	5,295	57,365	33,617	42,379	4	155,919	150,532	+ 3.6
15	0	17,552	5,103	55,468	33,143	41,527	4	152,796	149,747	+ 2.0
16	0	17,022	5,032	49,798	33,259	46,751	4	151,867	149,434	+ 1.6
17	0	14,888	4,617	43,642	32,822	52,805	4	148,779	148,898	- 0.1
18	0	11,939	3,848	35,755	32,017	57,689	4	141,253	145,849	- 3.2
19	0	11,410	3,222	39,938	32,392	62,531	4	149,498	151,833	- 1.5
20	1,031	15,457	2,667	41,642	31,807	78,939	4	171,548	159,369	+ 7.6
21	1,095	12,848	2,756	38,294	30,370	72,872	4	158,238	148,967	+ 6.2
22	1,095	9,780	2,322	36,850	29,583	57,929	545	138,104	137,635	+ 0.3
23	1,095	7,574	1,989	28,501	27,713	41,864	946	109,682	119,985	- 8.6
24	1,095	6,672	1,661	25,920	26,263	29,609	942	92,162	103,528	- 11.0
TOTAL	11,570	274,871	79,483	939,820	697,170	1,060,748	9,254	3,072,915	3,080,601	- 0.2
MIN	0	6,022	1,519	20,553	22,113	23,709	4	75,914	81,028	- 11.0
MAX	1,095	17,552	5,295	57,365	33,617	78,939	2,225	171,548	159,369	+ 7.6
MEAN	482	11,453	3,312	39,159	29,049	44,198	386	128,038	128,358	- 0.8

Table 4.7 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK Non-normalized at the Net-to-System Generation Level

May 2002

								Constructed	Actual	
								System	System	Percent
HOUR	F	G	Н	J	P	R	U	Total	Total	Error
1	1,232	6,879	1,534	25,989	22,800	26,100	288	84,821	88,400	- 4.0
2	1,232	6,526	1,505	22,716	22,564	27,278	251	82,072	84,359	- 2.7
3	1,232	6.579	1,499	22,439	22,124	23,128	248	77,249	81,789	- 5.6
. 4	1,232	6,661	1,572	22,894	21,559	23,300	205	77,422	80,958	- 4.4
5	1,232	6,645	1,596	23,787	22,873	27,219	1,909	85,261	86,165	- 1.0
6	411	6,835	2,079	28,662	24,830	36,370	1,858	101,045	97,844	+ 3.3
7	0	7,248	2,640	33,695	26,759	54,150	27	124,520	118,187	+ 5.4
8	0	9,684	3,426	40,813	28,577	49,966	5	132,470	132,371	+ 0.1
9	0	14,004	4,092	52,304	30,448	44,153	5	145,005	140,715	+ 3.0
10	0	16,399	4,543	53,921	31,387	48,302	5	154,557	145,666	+ 6.1
11	0	15,833	4,289	52,196	31,162	49,973	5	153,458	146,219	+ 5.0
12	0	16,522	4,396	52,682	31,304	42,746	5	147,655	145,862	+ 1.2
t3	0	16,672	4,542	51,442	31,225	50,560	5	154,446	144,847	+ 6.6
14	0	16,721	4,518	50,174	30,654	49,345	6	151,418	143,236	+ 5.7
15	0	16,512	4,520	49,010	30,106	41,866	7	142,021	142,184	- 0.1
16	0	16,474	4,355	43,971	29,669	54,843	7	149,320	142,635	+ 4.7
17	0	14,685	3,847	37,526	29,552	50,732	5	136,347	146,878	- 7.2
18	0	13,235	3,594	31,257	28,440	73,596	5	15 <u>0,</u> 126	151,097	- 0.6
19	0	12,353	3,160	32,941	28,773	88,384	5	165,616	156,127	+ 6.1
20	945	12,428	2,923	35,873	28,503	79,851	5	160,527	152,832	+ 5.0
21	1,232	11,460	2,687	36,709	27,337	67,633	5	147,064	141,518	+ 3.9
22	1,232	8,768	2,296	36,876	26,819	58,032	503	134,527	128,762	+ 4.5
23	1,232	7,975	1,879	27,754	25,118	41,104	694	105,755	114,494	- 7.6
24	1,232	7,147	1,741	23,910	23,253	33,838	632	91,752	93,696	- 2.1
TOTAL	12,447	274,244	73,232	889,541	655,835	1,142,467	6,689	3,054,454	3,006,843	+ 1.6
MIN	0	6,526	1,499	22,439	21,559	23,128	5	77,249	80,958	- 7.6
MAX	1,232	16,721	4,543	53,921	31,387	88,384	1,909	165,616	156,127	+ 6.6
MEAN	519	11,427	3,051	37,064	27,326	47,603	279	127,269	125,285	+ 1.1

Table 4.7 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK

Non-normalized at the Net-to-System Generation Level

June 2002

							(Constructed	Actual	
								System	System	Percent
HOUR	F_	G	H	J	Р	R	U	Total	Total	Error
1	1,316	6,836	1,708	27,444	23,428	31,605	522	92,860	93,246	- 0.4
2	1,316	6,814	1,596	25,536	22,814	28,405	643	87,124	87,810	- 0.8
3	1,316	6,799	1,526	24,917	22,550	23,896	761	81,766	85,398	- 4.3
4	1,316	6,651	1,568	27,426	23,191	24,912	734	85,798	85,601	+ 0.2
5	1,316	6,787	1,632	27,600	23,766	27,959	2,166	91,226	90,759	+ 0.5
6	373	6,985	2,165	31,403	25,626	31,949	2,280	100,782	101,609	- 0.8
7	0	8,057	2,483	32,462	27,414	44,612	447	115,475	112,545	+ 2.6
8	0	11,950	3,384	35,190	28,611	43,635	4	122,773	129,672	- 5.3
9	0	15,273	4,470	43,724	30,152	55,019	4	148,642	140,231	+ 6.0
10	0	15,636	4,858	43,580	31,215	37,783	4	133,076	147,218	- 9.6
11	0	17,721	5,089	47,117	31,582	37,509	4	139,024	150,305	- 7.5
12	0	18,683	5,474	49,315	32,145	47,907	4	153,529	150,673	+ 1.9
13	0	17,537	5,318	49,618	32,100	44,111	4	148,688	150,655	- 1.3
14	0	17,866	5,617	46,007	32,052	40,499	4	142,044	148,891	- 4.6
15	0	16,630	5,483	44,925	32,226	38,764	4	138,032	149,855	- 7.9
16	0	19,225	5,425	43,512	31,856	48,969	4	148,990	149,331	- 0.2
17	0	17,218	5,176	35,416	31,873	51,018	4	140,705	149,909	- 6.1
18	0	14,704	4,458	31,267	30,993	53,531	4	134,957	148,480	- 9.1
19	0	14,637	3,704	31,906	30,674	82,852	4	163,777	_ 150,006_	+ 9.2
20	768	15,233	3,103	36,590	30,582	62,904	4	149,184	151,532	- 1.5
21	1,316	14,597	2,853	37,183	29,599	63,211	4	148,763	147,588	+ 0.8
22	1,316	9,835	2,441	37,064	28,934	59,657	356	139,603	135,904	+ 2.7
23	1,316	8,211	2,245	28,657	26,803	50,790	523	118,546	122,854	- 3.5
24	1,316	7,723	1,959	26,209	25,000	37,212	487	99,905	105,825	- 5.6
TOTAL	12,985	301,610	83,736	864,066	685,187	1,068,710	8,973	3,025,268	3,085,897	- 2.0
MIN	0	6,651	1,526	24,917	22,550	23,896	4	81,766	85,398	- 9.6
MAX	1,316	19,225	5,617	49,618	32,226	82,852	2,280	163,777	151,532	+ 9.2
MEAN	541	12,567	3,489	36,003	28,549	44,530	374	126,053	128,579	- 1.9

Table 4.7 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE SYSTEM PEAK
Non-normalized at the Net-to-System Generation Level

July 2002

								Constructed System	Actual System	Percent
HOUR	F	G	н	j	P	R	υ	Total	Total	Error
1	1,165	6,841	1,672	27,032	24,289	34,030	588	95,617	96,951	- 1.4
2	1,165	6,837	1,587	23,986	23,873	30,526	525	88,500	91,442	- 3.2
3	1,165	7,052	1,547	20,776	23,167	26,811	524	81,043	87,861	- 7.8
4	1,165	6,769	1,622	22,855	23,787	27,725	486	84,409	87,389	- 3.4
5	1,165	6,976	1,903	22,792	24,997	31,485	2,042	91,361	92,442	- 1.2
6	495	7,287	2,103	26,731	27,007	37,678	2,117	103,419	102,731	+ 0.7
7	0	7,478	2,676	33,211	28,176	46,442	294	118,277	115,141	+ 2.7
8	0	11,288	3,602	40,119	29,995	42,651	4	127,660	133,869	- 4.6
9	0	16,520	4,644	46,809	32,563	46,151	4	146,691	147,801	- 0.8
10	0	19,164	5,236	50,268	34,277	48,674	4	157,624	155,470	+ 1.4
11	0	19,228	5,332	49,137	34,630	43,835	4	152,165	158,598	- 4.1
12	0	19,872	5,543	52,396	34,176	44,745	4	156,735	159,070	- 1.5
13	0	20,031	5,688	53,805	35,124	52,142	5	166,795	161,016	+ 3.6
14	0	20,339	5,656	53,330	34,568	48,132	186	162,212	158,958	+ 2.0
15	0	19,276	5,562	51,904	35,039	44,234	4	156,019	158,089	- 1.3
16	0	18,761	5,361	49,055	35,004	51,551	4	159,736	157,725	+ 1.3
17	0	18,413	4,942	43,593	34,305	44,523	4	145,780	156,472	- 6.8
18	0	15,403	4,250	34,230	33,397	57,417	4	144,701	151,784	- 4.7
19	0_	13,827	3,417	39,179	33,660	72,648	4	162,735	155,081	+ 4.9
20	651	14,427	3,098	40,597	33,896	76,917	4	169,589	163,362	+ 3.8
21	1,165	12,007	2,690	41,196	32,684	67,119	4	156,865	152,834	+ 2.6
22	1,165	9,934	2,550	44,003	31,884	66,940	254	156,731	140,901	+ 11.2
23	1,165	8,248	2,111	35,423	29,992	48,103	471	125,514	129,902	- 3.4
24	1,165	7,683	2,051	28,956	27,172	39,005	280	106,311	111,436	- 4.6
TOTAL	11,633	313,661	84,843	931,385	737,663	1,129,484	7,822	3,216,490	3,226,325	- 0.3
MIN	0	6,769	1,547	20,776	23,167	26,811	4	81,043	87,389	- 7.8
MAX	1,165	20,339	5,688	53,805	35,124	76,917	2,117	169,589	163,362	+ 11.2
MEAN	485	13,069	3,535	38,808	30,736	47,062	326	134,020	134,430	- 0.6

Exhibit 4.6 a

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

August 2001

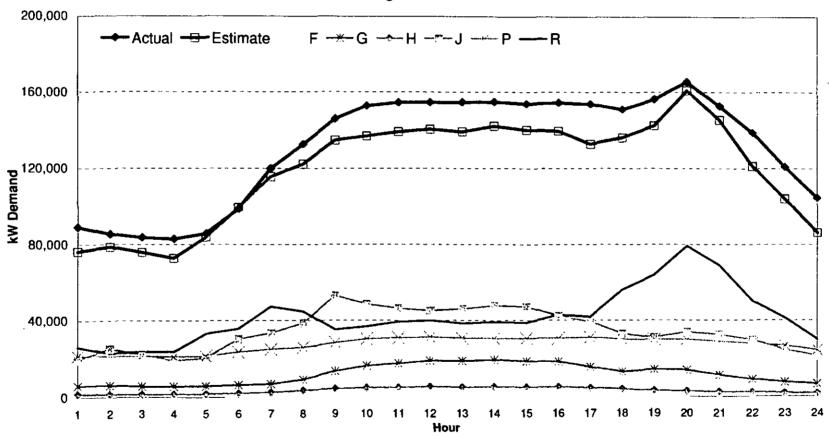


Exhibit 4.6 b

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

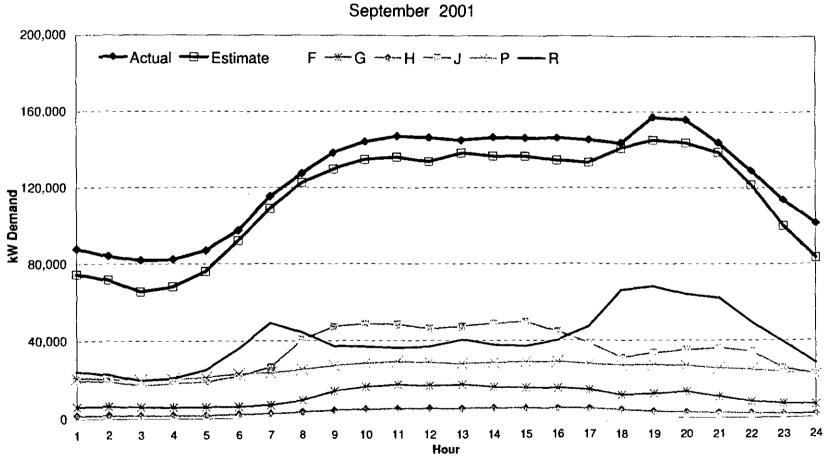


Exhibit 4.6 c

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

October 2001

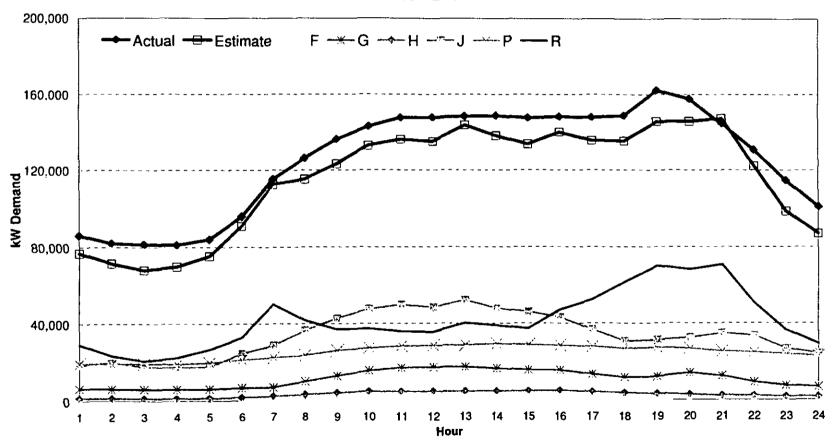


Exhibit 4.6 d

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

November 2001

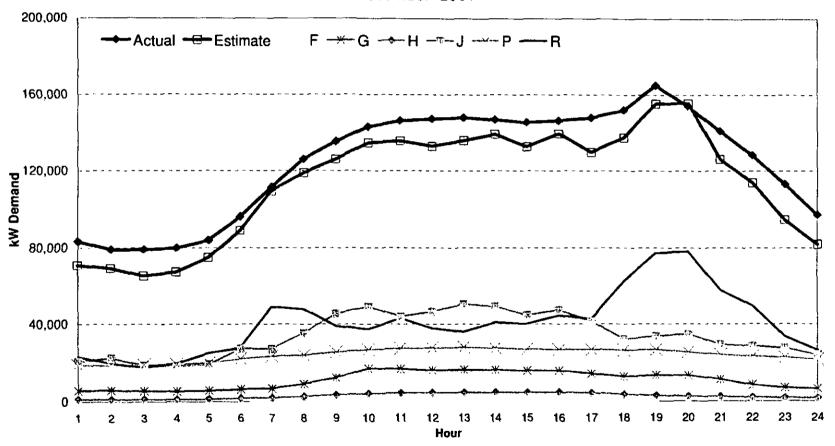


Exhibit 4.6 e

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

December 2001

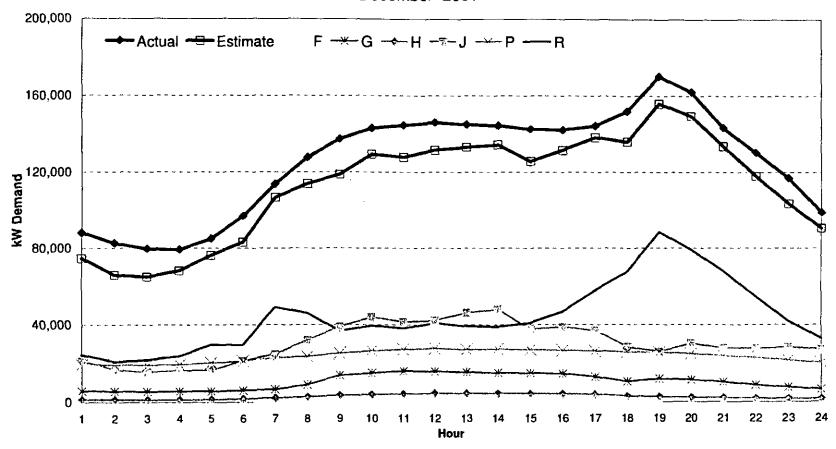


Exhibit 4.6 f

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

January 2002

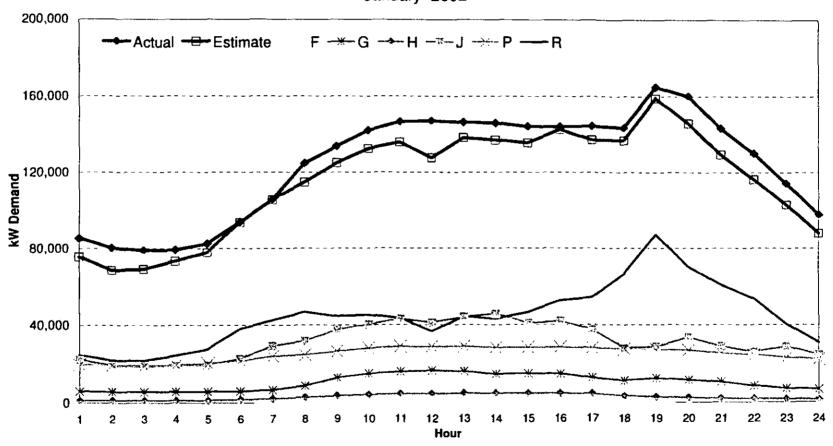


Exhibit 4.6 g

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

February 2002

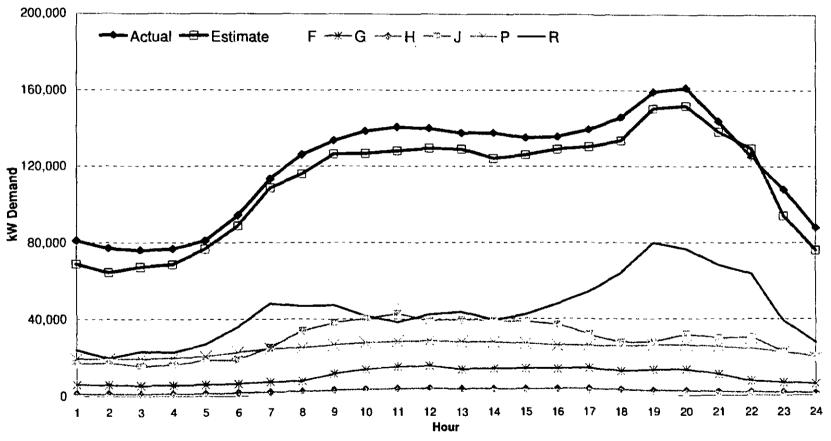


Exhibit 4.6 h

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

March 2002

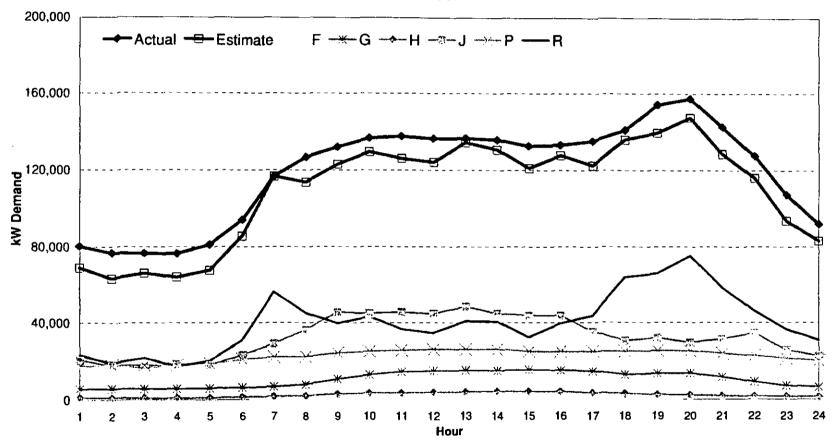


Exhibit 4.6 i

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

April 2002

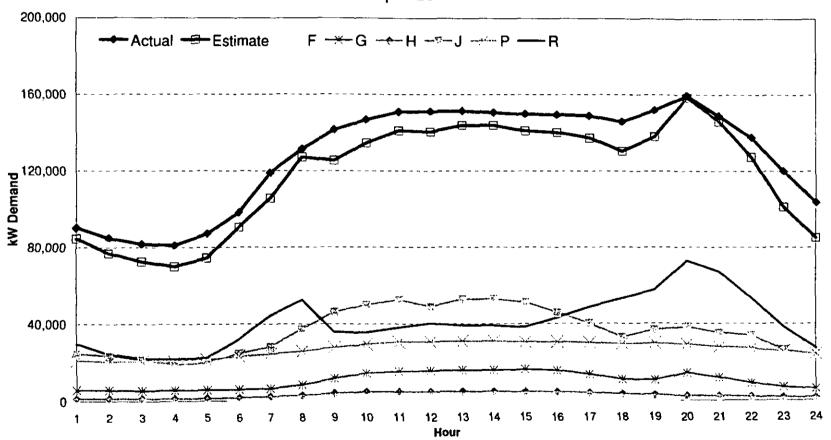


Exhibit 4.6 j

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

May 2002

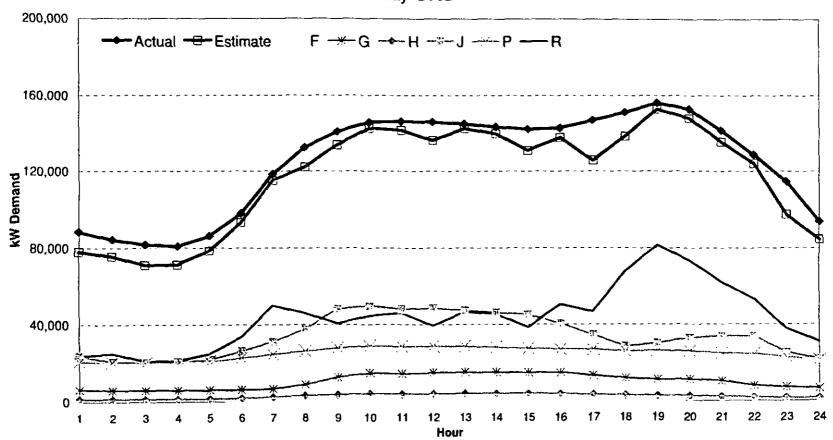


Exhibit 4.6 k

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

June 2002

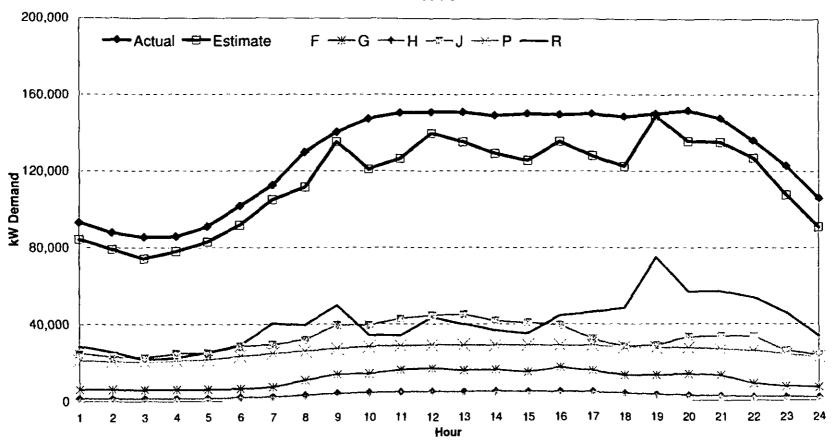


Exhibit 4.6 I

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE SYSTEM PEAK
Actual Net-to-System vs Sample Estimate

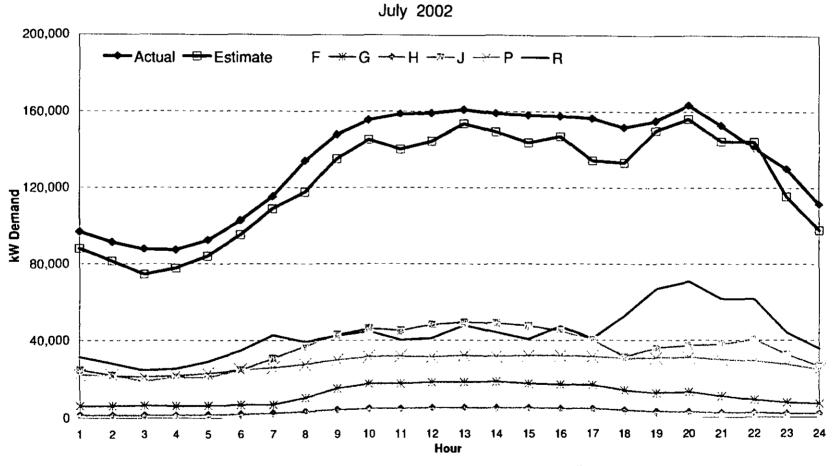


Table 4.8 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
August 2001

HOUD	F	^	un-	•	P		บ	System
HOUR	1,264	7,012	H/K 1,913	22,482	24,960	R 30,512		Total
2	1,204	6,658	1,695	22,462 27,390	23,036	30,512 24,758	1,011 895	89,154
3	1,176	6,278	1,697	27,390 24,058	23,492	24,756 26.068	952	85,609 83,739
4	1,193	6,485	1,777	24,036 21,597	24,022	26,906	952 956	
5	1,109	5,897	1,729	20,761	21,760	33,804	950 867	82,977
6	645	6,301	2,090	30.011		35,445	848	85,926
7	0	7,043	2,610		23,296		-	98,637
8	0	7,043 9,887	3,811	34,590	25,776 28,083	49,175	668 229	119,863
9	0			41,862		48,556		132,428
		14,616	4,752	57,585	30,660	38,171	217	146,001
10	0	18,108	5,385	54,249	33,803	41,057	232	152,834
11	0	19,389	5,572	51,474	34,252	43,701	243	154,631
12	0	20,704	5,813	49,654	34,290	44,013	231	154,705
13	0	20,828	5,673	51,176	34,102	42,695	232	154,707
14	0	21,062	5,742	51,994	33,275	42,638	256	154,966
15	0	20,364	5,586	51,779	33,521	42,460	259	153,970
16	0	20,349	5,670	46,937	33,834	47,535	211	154,536
17	0	18,074	5,500	45,414	36,038	48,718	193	153,937
18	0	14,433	4,559	36,465	33,240	62,159	184	151,040
19	0	15,683	3,582	34,013	32,738	70,157	180	156,354
20	890	14,407	2,995	34,701	30,748	81,492	170	165,403
21	1,136	11,919	2,817	34,045	30,422	72,292	174	152,805
22	1,241	10,379	2,766	34,093	31,976	57,863	673	138,992
23	1,255	8,783	2,329	28,382	30,952	47,965	1,021	120,687
24	1,310	8,084	2,228	25,992	29,518	36,331	1,066	104,527
TOTAL	12,453	312,745	88,291	910,704	717,794	1,094,471	11,971	3,148,429
MIN	0	5,897	1,695	20,761	21,760	24,758	170	82,977
MAX	1,310	21,062	5,813	57,585	36,038	81,492	1,066	165,403
MEAN	519	13,031	3,679	37,946	29,908	45,603	499	131,185

The Instantaneous system day peak of 156.7 MW occurred on August 27, 2001 @ 10:49.

Table 4.8 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK September 2001

Houn	F	G	H/K		P	n	••	System
HOUR				J		<u>R</u>	<u> </u>	Total
1	1,302	7,515	2,041	22,572	26,699	29,570	875	90,574
2	1,267	6,984	1,992	22,489	25,130	26,271	889	85,022
3	1,288	7,088	1,863	20,838	25,739	24,299	925	82,040
4	1,261	7,045	1,873	19,997	25,466	25,209	1,234	82,085
5	1,229	7,307	2,004	21,269	25,407	30,676	1,221	89,115
6	837	7,357	2,297	25,415	25,716	38,699	1,124	101,445
7	Ō	7,836	2,564	29,981	25,948	51,687	934	118,949
8	0	9,943	3,311	39,983	26,781	50,054	1,235	131,306
9	0	14,525	4,536	50,051	32,128	38,260	2,657	142,157
10	0_	16,439	5,068	48,039	31,635	42,404	2,478	146,064
11	0	16,573	5,070	50,763	31,138	42,989	2,362	148,895
12	0	17,358	5,204	49,051	31,070	42,710	2,299	147,693
13	0	17,784	5,371	49,068	32,210	40,914	1,691	147,037
14	0	18,505	5,495	50,818	32,813	39,250	5	146,885
15	0	17,117	5,396	49,313	31,959	41,806	5	145,597
16	0	17,940	5,302	44,511	32,735	46,025	5	146,518
17	0	16,324	5,083	42,031	33,709	48,617	6	145,769
18	0	14,198	4,300	30,986	31,924	62,824	5	144,237
19	245	13,512	3,358	33,697	31,345	69,988	5	152,151
20	1,181	14,506	3,119	33,936	32,795	71,841	5	157,383
21	1,256	13,850	3,096	34,268	32,442	62,700	6	147,618
22	1,214	10,431	2,714	34,797	30,674	53,489	484	133,804
23	1,125	8,516	2,144	29,189	26,666	45,593	1,060	114,293
24	1,222	7,992	2,171	28,100	26,812	33,909	1,155	101,362
TOTAL	13,429	296,647	85,371	861,162	708,942	1,059,785	22,667	3,048,001
MIN	0	6,984	1,863	19,997	25,130	24,299	5	82,040
MAX	1,302	18,505	5,495	50,818	33,709	71,841	2,657	157,383
MEAN	560	12,360	3,557	35,882	29,539	44,158	944	127,000

The instantaneous system day peak of 153.7 MW occurred on September 7, 2001 @ 10:32.

Table 4.8 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
October 2001

								System
HOUR	<u>_</u>	G	H/K	J_	P	R	U	Total
1	1,160	7,627	2,119	24,690	26,190	29,015	903	91,706
2	1,130	7,359	1,956	23,919	24,679	26,540	858	86,441
3	1,155	7,625	1,963	22,471	25,369	24,689	870	84,142
4	1,097	7,052	1,873	23,105	24,354	25,375	834	83,689
5	1,082	7,082	1,970	24,909	24,598	26,149	2,521	88,311
6	851	6,911	2,184	25,424	24,260	37,227	2,031	98,889
7	0	7,894	2,868	33,842	28,735	45,361	505	119,205
8	0	10,086	3,567	41,839	29,750	46,034	4	131,281
9	0	13,726	4,310	48,692	30,967	42,585	4	140,285
10	0	16,822	5,163	50,042	33,904	41,466	4	147,401
11	0_	18,453	5,326	51,871 _	34,990	40,059	4	150,703
12	0	18,279	5,587	50,323	35,955	40,258	4	150,407
13	0	18,405	5,482	50,211	34,618	40,751	4	149,472
14	0	17,795	5,443	49,282	33,561	42,810	4	148,896
15	0	16,208	5,371	48,201	31,845	45,757	4	147,385
16	0	16,318	5,274	46,713	31,989	48,813	4	149,112
17	0	14,491	4,766	39,644	31,477	58,061	4	148,444
18	0	11,886	3,793	28,862	28,687	74,962	4	148,194
19	643	13,622	3,336	29,926	30,309	78,286	4	156,126
20	1,038	14,672	3,047	34,349	29,794	63,530	4	146,435
21	1,075	13,350	2,859	34,231	29,257	56,536	4	137,313
22	1,076	10,229	2,615	33,600	28,654	50,499	286	126,959
23	1,135	9,269	2,399	29,480	29,372	42,609	771	115,034
24	1,117	8,252	2,131	26,365	26,199	35,378	716	100,158
TOTAL	12,559	293,413	85,403	871,994	709,510	1,062,753	10,355	3,045,987
MIN	O	6,911	1,873	22,471	24,260	24,689	4	83,689
MAX	1,160	18,453	5,587	51,871	35,955	78,286	2,521	156,126
MEAN	523	12,226	3,558	36,333	29,563	44,281	431	126,916

The instantaneous system day peak of 153.4 MW occurred on October 26, 2001 @ 11:04.

Table 4.8 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
November 2001

								System
HOUR	F	G	H/K	J	P	R	<u>U</u>	Total
t	1,068	6,702	1,789	25,793	22,279	27,844	568	86,043
2	1,096	6,827	1,835	22,804	22,048	25,72 6	570	80,906
3	1,099	6,726	1,800	21,655	22,440	25,106	572	79,397
4	1,071	6,476	1,789	23,720	22,308	23,889	580	79,834
5	1,036	6,481	1,811	22,873	22,523	29,117	1,996	85,836
6	999	6,538	2,230	24,989	23,953	38,538	1,043	98,290
7	282	7,052	2,435	30,558	23,990	55,921	292	120,530
8	0	11,056	3,635	39,424	27,622	51,483	4	133,224
9	0	15,185	4,258	45,867	30,486	48,890	4	144,690
10	0	17,846	4,777	49,796	32,791	45,277	4	150,490
11	0	18,049	4,522	45,181	31,173	50,198	4	149,127
12	0	19,296	4,282	45,476	31,312	51,729	4	152,099
13	0	18,691	4,422	45,149	29,409	52,485	4	150,161
14	0	18,158	4,691	46,332	30,824	48,102	4	148,112
15	0	18,141	4,541	41,021	28,198	52,456	4	144,361
16	0	17,717	4,767	41,817	29,926	52,214	4	146,446
17	0	15,567	4,167	37,906	30,222	66,664	4	154,531
18	0	14,111	3,520	32,751	30,349	81,721	4	162,457
19	937	13,339	2,912	32,497	28,856	87,722	4	166,267
20	1,029	13,065	2,510	32,684	27,461	77,271	4	154,024
21	1,087	11,929	2,329	31,688	27,783	64,679	4	139,500
22	1,024	8,558	2,084	29,300	25,432	57,209	335	123,943
23	1,127	8,194	2,129	25,401	26,078	43,773	597	107,299
24	1,169	7,897	1,916	24,094	24,849	32,181	630	92,737
TOTAL	13,024	293,602	75,149	818,777	652,315	1,190,194	7,242	3,050,303
MIN	0	6,476	1,789	21,655	22,048	23,889	4	79,397
MAX	1,169	19,296	4,777	49,796	32,791	87,722	1,996	166,267
MEAN	543	12,233	3,131	34,116	27,180	49,591	302	127,096

The instantaneous system day peak of 154.0 MW occurred on November 27, 2001 @ 11:07.

Table 4.8 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

December 2001

110115	_	_		_	_	_		System
HOUR	F	G	H/K	<u>J_</u>	P	R	U	<u>Total</u>
1	1,101	6,622	1,722	24,021	22,002	28,228	857	84,552
2	1,151	6,713	1,753	21,604	21,893	24,633	825	78,572
3	1,116	6,484	1,673	19,471	20,794	24,576	644	74,758
4	1,091	5,978	1,547	23,011	21,653	21,550	488	75,319
5	1,086	6,022	1,604	22,147	22,413	27,547	2,030	82,848
6	1,052	6,171	2,054	24,544	24,052	35,287	1,946	95,106
7	393	6,799	2,514	30,045	26,638	49,468	520	116,377
8	0	9,660	2,968	35,780	25,615	57,159	4	131,186
9	0	13,736	3,407	42,605	28,757	50,079	4	138,589
10	0	15,643	4,067	46,931	28,926	47,044	4	142,616
11	0	17,490	<u>4,</u> 376	48,708	31,358	41,393	4	143,329
12	0	19,323	4,616	48,499	31,976	42,947	4	147,365
13	_ 0	16,243	4,414	48,851	29,908	44,475	4	143,895
14	0	17,294	4,483	49,859	29,452	42,284	4	143,376
15	0	16,510	4,986	44,858	29,296	42,333	4	137,987
16	0	15,585	4,355	45,371	28,364	48,232	4	141,911
17	0	14,684	4,090	39,296	27,881	60,494	. 4	146,449
18	0	12,576	3,539	33,032	26,596	79,323	4	155,070
19	971	13,996	3,358	34,718	29,961	83,463	4	166,471
20	1,109	12,361	2,863	34,269	27,726	77,475	4	155,807
21	1,115	10,985	2,599	36,409	26,624	63,318	7	141,058
22	1,048	8,510	2,106	36,954	24,366	52,986	345	126,315
23	1,196	9,100	2,183	27.804	26,617	45,651	859	113,411
24	1,167	8,086	1,895	22,855	24,218	36,856	897	95,975
TOTAL	13,598	276,571	73,173	841,642	637,087	1,126,800	9,471	2,978,342
MIN	0	5,978	1,547	19,471	20,794	21,550	4	74,758
MAX	1,196	19,323	4,986	49,859	31,976	83,463	2,030	166,471
MEAN	567	11,524	3,049	35,068	26,545	46,950	395	124,098

The instantaneous system day peak of 152.4 MW occurred on December 13, 2001 @ 11:44.

Table 4.8 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

January 2002

				•				Cuetam
HOUR	F	G	H/K	J	P	R	บ	System Total
1	1,037	6,772	1,498	25,189	22,231	27,849	943	85,520
2	1,074	6,646	1,497	22,318	22,537	25,334	959	80,365
3	1,049	6,425	1,440	21,111	21,644	24,763	2,569	79,002
4	990	6,138	1,350	20,458	20,956	26,203	3,129	79,225
5	974	6,144	1,436	20,502	21,309	29,207	3,045	82,618
6	920	5,950	1,712	22,746	21,599	38,261	2,621	93,811
7	491	6,554	2,070	29,242	23,840	42,768	712	105,677
8	0	9,436	3,011	34,494	26,724	51,019	5	124,689
9	0	13,533	3,785	40,322	28,156	47,752	5	133,552
10	0	15,852	4,327	43,339	30,023	48,561	5	142,107
11	0	17,079	4,731	46,669	31,068	47,145	5_	146,697
12	0	18,813	5,174	47,629	33,132	42,340	5	147,093
13	0	16,955	4,930	46,897	30,605	47,120	5	146,511
14	0	15,628	5,080	48,943	30,215	46,142	5	146,012
15	0	15,758	4,960	43,591	30,207	49,654	5	144,174
16	0	14,801	4,766	42,526	28,666	53,352	4	144,116
17	0	13,271	4,606	39,565	29,562	57,457	5	144,466
18	0	11,723	3,643	29,372	28,903	70,038	5	143,683
19	508	12,907	2,962	29,698	28,314	90,489	5	164,882
20	1,008	12,703	2,760	36,853	29,558	77,204	5	160,090
21	1,017	11,805	2,378	32,148	28,234	67,772	5	143,359
22	1,026	9,573	2,109	29,099	27,408	60,267	472	129,955
23	1,019	7,942	1,871	31,935	25,574	44,980	936	114,255
24	1,020	7,602	1,627	27,316	24,720	34,413	974	97,672
TOTAL	12,134	270,012	73,722	811,962	645,183	1,150,090	16,428	2,979,531
MIN	0	5,950	1,350	20,458	20,956	24,763	4	79,002
MAX	1,074	18,813	5,174	48,943	33,132	90,489	3,129	164,882
MEAN	506	11,250	3,072	33,832	26,883	47,920	684	124,147

The instantaneous system day peak of 149.5 MW occurred on January 7, 2002 @ 11:18.

Table 4.8 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
February 2002

				_				System
HOUR	F	_ G	H/K	J	P	R	U	Total
1	1,103	6,783	1,550	23,621	22,422	30,526	558	86,563
2	1,164	7,018	1,595	21,404	23,314	26,717	620	81,833
3	1,141	6,384	1,496	19,837	22,893	26,874	551	79,177
4	1,126	6,170	1,525	22,664	22,746	24,449	525	79,204
5	1,095	6,410	1,582	21,712	23,240	28,580	2,086	84,704
6	1,111	6,804	2,052	24,618	25,438	34,254	2,544	96,821
7	437	7,574	2,361	29,129	26,817	48,245	116	114,679
8	0	8,328	2,575	33,013	25,493	59,370	4	128,783
9	0	11,738	3,586	42,851	28,419	49,901	4	136,499
10	0	15,160	4,479	45,248	30,283	47,587	4	142,760
11	0	15,631	4,602	49,663	31,009	44,178	4	145,088
12	0	16,026	4,766	48,689	31,085	44,261	4	144,832
13	0	15,412	4,537	48,561	30,328	46,271	4	145,112
14	0	15,650	4,857	50,587	32,735	42,028	4	145,862
15	0	15,399	4,650	47,698	31,619	43,810	4	143,179
16	0	16,192	4,311	44,794	31,465	45,958	4	142,725
17	0	16,240	4,155	39,661	33,253	51,443	5	144,758
18	0	13,741	3,450	33,662	31,545	66,887	4	149,289
19	265	14,446	2,902	32,491	29,951	79,970	4	160,029
20	1,050	12,769	2,687	36,381	29,135	76,173	4	158,199
21	1,065	11,143	2,375	35,206	28,467	66,519	6	144,781
22	1,075	9,044	2,239	33,794	27,542	53,227	171	127,093
23	1,132	7,978	2,001	31,151	27,047	44,825	647	114,781
24	1,126	7,269	1,778	27,501	25,160	34,249	630	97,712
TOTAL	12,890	269,308	72,112	843,936	671,403	1,116,303	8,511	2,994,464
MIN	0	6,170	1,496	19,837	22,422	24,449	4	79,177
MAX	1,164	16,240	4,857	50,587	33,253	79,970	2,544	160,029
MEAN	537	11,221	3,005	35,164	27,975	46,513	355	124,769

The instantaneous system day peak of 147.4 MW occurred on February 19, 2002 @ 10:38.

Table 4.8 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
March 2002

								0
HOUR	F	G	H/K	j	P	R	υ	System Total
1	1,310	7,617	1,691	28,059	24,876	27,535	664	91,752
2	1,331	7,480	1,535	24,291	24,416	24,606	6 66	84,325
3	1,277	7,222	1,427	23,946	22,915	23,882	636	81,306
4	1,254	6,899	1,423	25,307	22,629	22,905	584	81,000
5	1,217	6,689	1,492	24,403	23,117	27,965	2,311	87,194
6	1,145	6,609	1,857	27,981	23,453	34,713	1,948	97,707
7	35	6,738	2,040	31,701	23,381	53,336	235	117,465
8	0	8,958	2,391	38,225	23,904	56,859	4	130,342
9	0	13,115	3,534	47,073	28,027	44,221	4	135,976
10	0	15,676	4,052	47,245	29,239	47,857	4	144,072
11	0	15,422	4,068	50,428	28,244	47,146	4	145,311
12	0	16,697	3,846	47,633	28,433	47,260	4	143,873
13	0	17,422	3,877	49,431	28,931	43,215	4	142,880
14	0	17,898	4,089	47,438	28,065	44,647	4	142,141
15	0	18,677	4,364	52,187	29,200	37,564	4	141,996
16	0	17,456	4,379	43,740	29,550	46,078	4	141,208
17	0	15,482	4,083	37,441	29,439	54,638	4	141,087
18	0	11,864	3,346	30,408	26,797	68,002	4	140,421
19	97	12,234	3,062	32,336	29,367	70,068	5	147,169
20	1,189	12,914	2,739	34,249	30,371	69,075	5	150,542
21	1,183	11,864	2,436	34,823	28,959	57,725	5	136,994
22	1,097	9,740	2,027	34,140	26,097	51,017	235	124,354
23	1,181	8,653	1,919	28,374	26,250	47,707	674	114,758
24	1,160	8,122	1,591	26,373	23,662	39,861	647	101,416
TOTAL	13,476	281,448	67,269	867,233	639,322	1,087,882	8,660	2,965,290
MIN	0	6,609	1,423	23,946	22,629	22,905	4	81,000
MAX	1,331	18,677	4,379	52,187	30,371	70,068	2,311	150,542
MEAN	561	11,727	2,803	36,135	26,638	45,328	361	123,554

The instantaneous system day peak of 147.3 MW occurred on March 15, 2002 @ 10:09.

Table 4.8 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
April 2002

			·					System
HOUR	F	G	H/K	J	P	R	U	<u>Total</u>
1	1,079	6,376	1,589	26,417	22,360	32,026	575	90,422
2	1,113	6,397	1,602	25,764	22,486	26,858	578	84,798
3	1,137	6,256	1,578	24,066	23,171	24,976	594	81,777
4	1,169	6,605	1,658	21,937	23,776	25,306	577	81,028
5	1,183	6,795	1,795	23,268	25,059	26,541	2,404	87,044
6	684	6,516	2,030	26,758	25,324	34,816	2,005	98,132
7	0	7,225	2,543	31,586	27,291	49,944	274	118,864
8	0	8,592	3,136	38,609	26,719	54,280	4	131,340
9	0	13,082	4,535	52,126	31,272	40,361	5	141,381
10	0	15,705	5,331	54,517	32,257	38,908	5	146,722
11	0	16,230	5,128	56,136	32,573	40,757	4	150,828
12	0	16,739	5,102	52,752	33,052	43,415	4	151,065
13	0	16,736	5,102	56,832	32,957	39,794	4	151,424
14	0	16,662	5,112	55,383	32,455	40,915	4	150,532
15	0	17,201	5,001	54,361	32,481	40,698	4	149,747
16	0	16,749	4,952	49,000	32,726	46,002	4	149,434
17	0	14,900	4,621	43,677	32,849	52,847	4	148,898
18	0	12,328	3,973	36,919	33,058	59,566	5	145,849
19	0	11,589	3,272	40,562	32,898	63,507	5	151,833
20	958	14,360	2,478	38,686	29,549	73,335	4	159,369
21	1,031	12,095	2,595	36,050	28,590	68,602	4	148,967
22	1,091	9,747	2,314	36,725	29,483	57,732	543	137,635
23	1,198	8,286	2,176	31,178	30,316	45,797	1,035	119,985
24	1,230	7,495	1,866	29,116	29,502	33,261	1,058	103,528
TOTAL	11,873	274,664	79,489	942,423	702,205	1,060,243	9,705	3,080,601
MIN	0	6,256	1,578	21,937	22,360	24,976	4	81,028
MAX	1,230	17,201	5,331	56,832	33,058	73,335	2,404	159,369
MEAN	495	11,444	3,312	39,268	29,259	44,177	404	128,358

Table 4.8 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
May 2002

HOUR	F	G	H/K	J	P	R	U	System
1	1,282	6,785	1,739	27,624	22,839	26,606	674	Total 87,548
ż	1,272	6,759	1,768	26,524	22,059	23,711	623	82,716
3	1,282	6,492	1,706	22,714	22,138	23,848	630	78,809
4	1,253	6,419	1,630	21,609	21,892	24,700	578	78,080
5	1,290	6,872	1,680	24,718	23,597	24,597	2,493	85,247
6	412	7,051	2,007	28,143	24,267	32,894	2,381	97,156
7	ō	6,600	2,359	31,152	24,737	51,624	289	116,761
8	Ö	8,852	2,833	41,280	26,870	51,173	5	131,013
9	Ö	11,740	3,506	51,758	29,028	43,271	5	139,307
10	0	13,659	4,241	55,795	30,415	41,594	5	145,709
11	0	15,191	4,518	56,477	31,688	41,038	5	148,917
12	0	16,174	4,972	51,233	31,288	45,342	5	149,014
13	0	15,805	4,878	56,180	31,845	40,559	5	149,272
14	0	16,023	4,642	54,263	31,138	41,739	5	147,810
15	0	16,290	4,719	51,460	31,129	42,740	5	146,343
16	0	16,653	4,841	48,069	30,854	45,276	5	145,698
17	0	15,529	4,861	43,223	32,982	48,620	5	145,221
18	0	12,406	3,842	34,217	31,440	60,778	5	142,688
19	0	12,521	3,098	32,235	29,198	68,246	5	145,302
20	925	13,027	2,808	36,700	29,467	67,389	5	150,321
21	1,209	11,945	2,528	35,803	27,863	61,392	5	140,745
22	1,134	9,949	2,119	36,982	25,709	55,769	368	132,029
23	1,194	8,327	1,926	31,698	25,054	49,497	618	118,315
24	1,202	7,172	1,825	27,910	23,339	40,400	568	102,416
TOTAL	12,456	268,241	75,048	927,767	660,837	1,052,802	9,289	3,006,439
MIN	0	6,419	1,630	21,609	21,892	23,711	5	78,080
MAX	1,290	16,653	4,972	56,477	32,982	68,246	2,493	150,321
MEAN	519	11,177	3,127	38,657	27,535	43,867	387	125,268

Table 4.8 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
June 2002

								System
<u>HOUR</u>	F	G	H/K	J	Р	R	<u> </u>	Total
1	1,452	7,748	1,848	28,059	26,145	30,380	845	96,476
2	1,456	7,420	1,854	26,181	25,492	27,302	855	90,561
3	1,454	7,222	1,757	24,826	25,493	26,887	826	88,465
4	1,355	6,706	1,666	23,260	23,606	29,802	595	86,991
5	1,457	7,219	1,891	25,098	26,617	27,567	2,116	91,966
6	391	7,201	2,292	28,135	26,846	34,597	1,745	101,207
7	0	7,527	2,627	30,149	25,073	46,697	291	112,363
8	0	11,413	3,570	36,825	28,740	50,061	4	130,613
9	0	17,516	4,751	46,970	32,299	42,033	4	143,574
10	0	19,174	5,328	46,259	33,699	45,840	4	150,304
11	0	18,967	5,060	45,553	32,595	50,141	4	152,319
12	0	19,543	5,434	48,013	33,940	46,003	4	152,937
13	ō	17,882	5,505	48,623	32,454	48,571	4	153,038
14	0	18,900	5,892	47,031	33,742	47,005	4	152,574
15	0	18,090	5,256	44,494	31,222	52,690	4	151,755
16	0	17,159	4,928	39,749	30,521	58,576	4	150,937
17	0	16,393	4,708	37,494	32,452	59,608	4	150,659
18	0	14,854	3,794	29,323	29,746	68,774	4	146,495
19	0	12,896	3,162	32,691	28,445	72,141	4	149,338
20	712	14,356	2,852	36,215	29,013	72,325	4	155,477
21	1,257	12,692	2,596	35,349	28,619	64,912	4	145,429
22	1,217	10,719	2,279	34,119	26,957	59,564	525	135,381
23	1,334	8,915	2,169	28,823	27,851	51,492	573	121,156
24	1,383	8,046	1,992	27,390	26,856	40,713	553	106,932
TOTAL	13,469	308,558	83,211	850,628	698,420	1,153,682	8,978	3,116,947
MIN	0	6,706	1,666	23,260	23,606	26,887	4	86,991
MAX	1,457	19,543	5,892	48,623	33,940	72,325	2,116	155,477
MEAN	561	12,857	3,467	35,443	29,101	48,070	374	129,873

The instantaneous system day peak of 154.5 MW occurred on June 27, 2002 @ 11:31.

Table 4.8 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
July 2002

				•				System
HOUR	F	G	H/K	J	P	R_	U	Total
1	1,156	7,286	1,724	29,983	25,644	34,504	836	101,134
2	1,193	7,082	1,669	28,731	26,232	29,549	845	95,301
3	1,225	6,980	1,654	25,945	26,763	28,029	866	91,461
4	1,145	6,608	1,668	27,275	24,429	28,239	803	90,166
5	1,217	7,010	1,951	27,621	27,407	27,612	2,402	95,221
6	505	7,091	2,170	29,508	28,057	35,521	2,505	105,356
7	0	6,489	2,280	30,993	26,445	48,545	539	115,292
8	0	10,803	3,329	42,452	31,389	47,295	19	135,288
9	0	15,925	4,551	51,009	33,990	44,441	6	149,922
10	0	18,953	5,158	57,087	36,373	41,166	4	158,742
11	0	19,276	4,980	56,819	35,010	44,424	4	160,513
12	0	18,229	5,129	55,485	35,065	45,505	4	159,417
13	0	18,125	5,042	58,220	35,361	44,025	4	160,777
14	0	18,527	5,111	60,765	35,765	40,199	4	160,372
15	0	18,675	5,179	55,091	35,910	43,112	4	157,971
16	0	17,452	4,888	53,306	33,949	50,036	4	159,634
17	0	17,280	4,819	49,669	35,982	51,735	4	159,489
18	0	15,075	4,404	41,107	33,944	60,379	4	154,912
19	0	12,282	3,112	37,596	30,919	73,707	4	157,620
20	590	14,212	2,681	40,557	29,833	74,754	4	162,631
21	1,090	12,519	2,472	38,775	29,755	67,195	4	151,810
22	1,073	9,779	2,208	42,201	28,817	54,535	426	139,038
23	1,134	8,120	1,949	35,739	28,512	52,292	819	128,565
24	1,161	8,078	1,816	30,355	27,033	41,408	836	110,686
TOTAL	11,488	301,856	79,943	1,006,286	742,586	1,108,208	10,950	3,261,317
MIN	0	6,489	1,654	25,945	24,429	27,612	4	90,166
MAX	1,225	19,276	5,179	60,765	36,373	74,754	2,505	162,631
MEAN	479	12,577	3,331	41,929	30,941	46,175	456	135,888

The Instantaneous system day peak of 161.4 MW occurred on July 31, 2002 @ 10:13.

Exhibit 4.7 a

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

August 2001

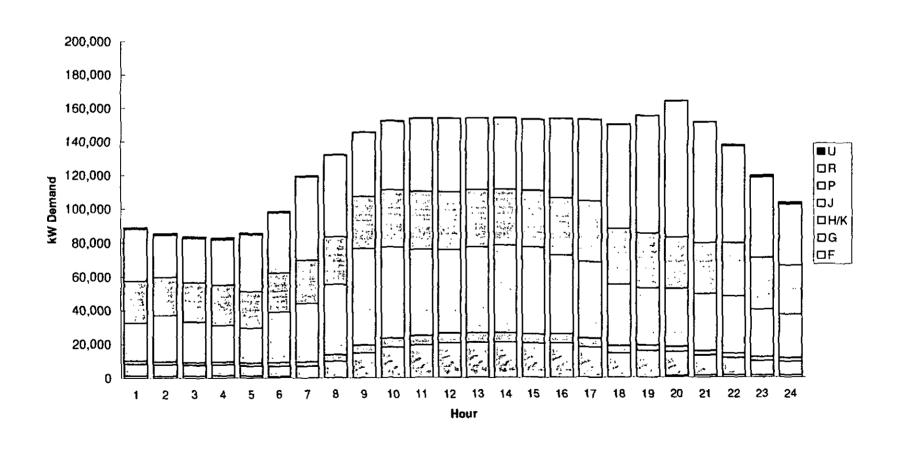


Exhibit 4.7 b

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

September 2001

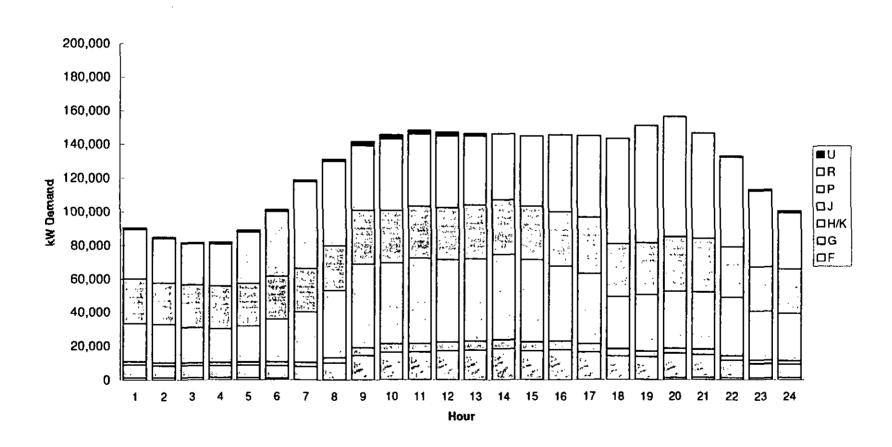


Exhibit 4.7 c

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

October 2001

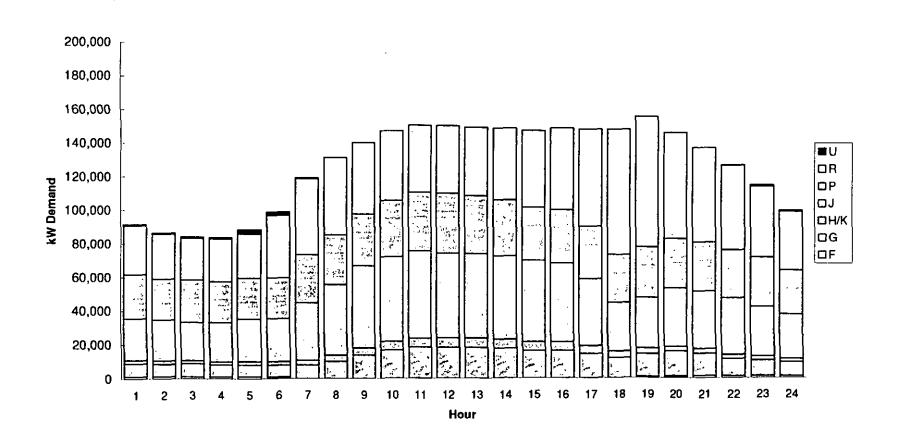


Exhibit 4.7 d

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

November 2001

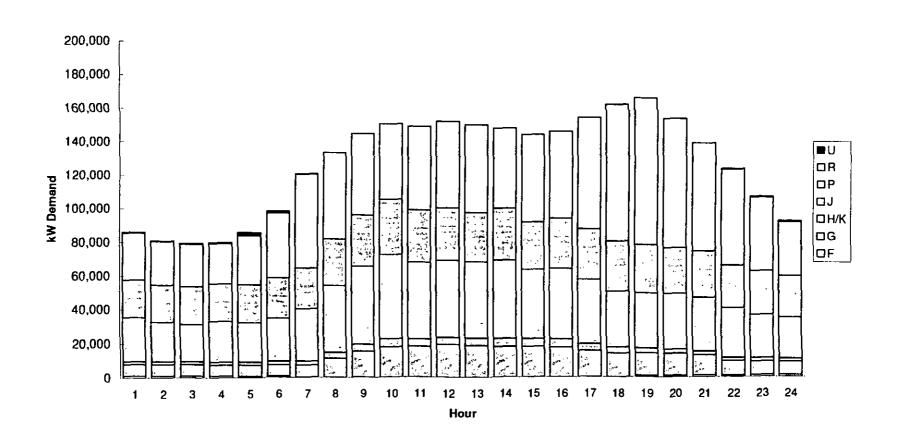


Exhibit 4.7 e

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

December 2001

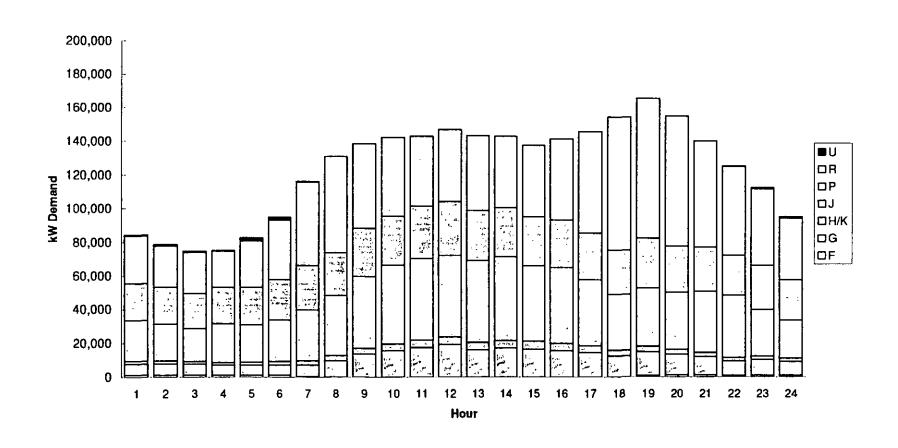


Exhibit 4.7 f

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

January 2002

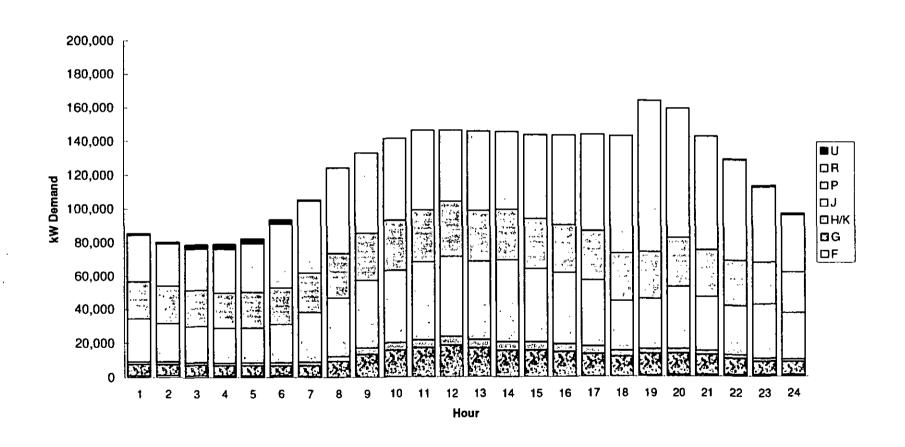


Exhibit 4.7 g

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level
February 2002

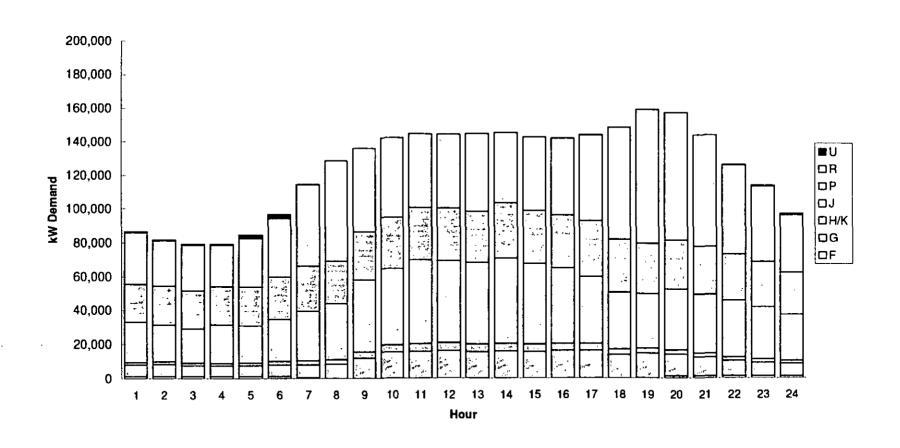


Exhibit 4.7 h

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

March 2002

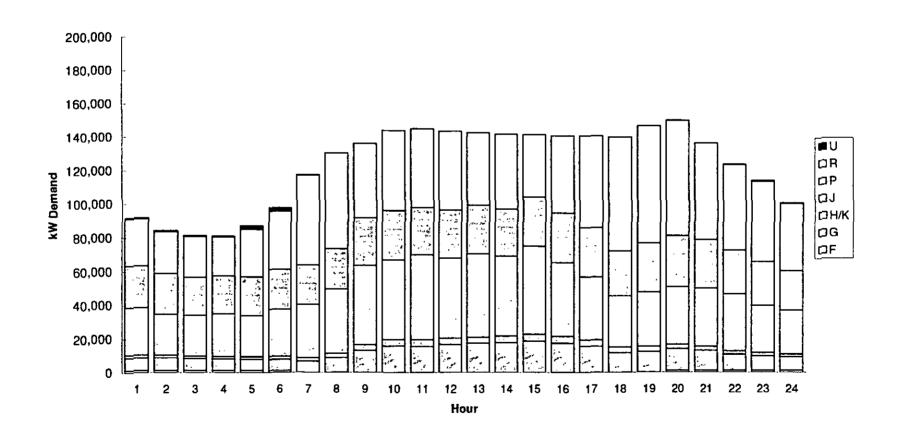


Exhibit 4.7 i

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

April 2002

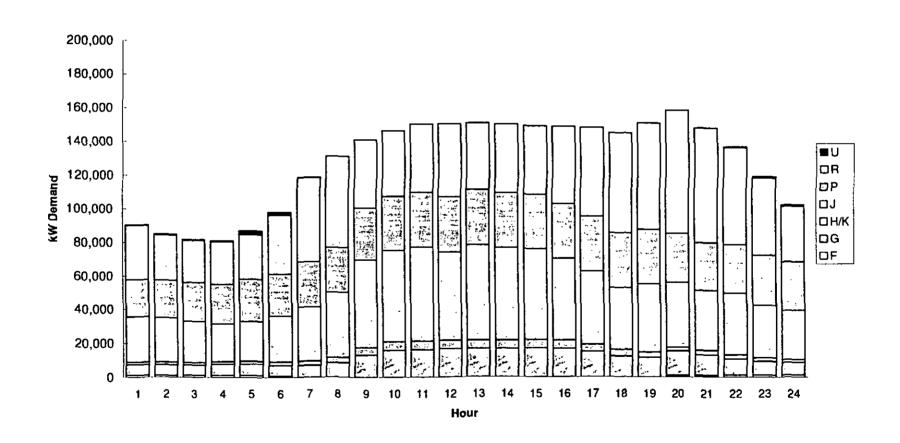


Exhibit 4.7 j

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

May 2002

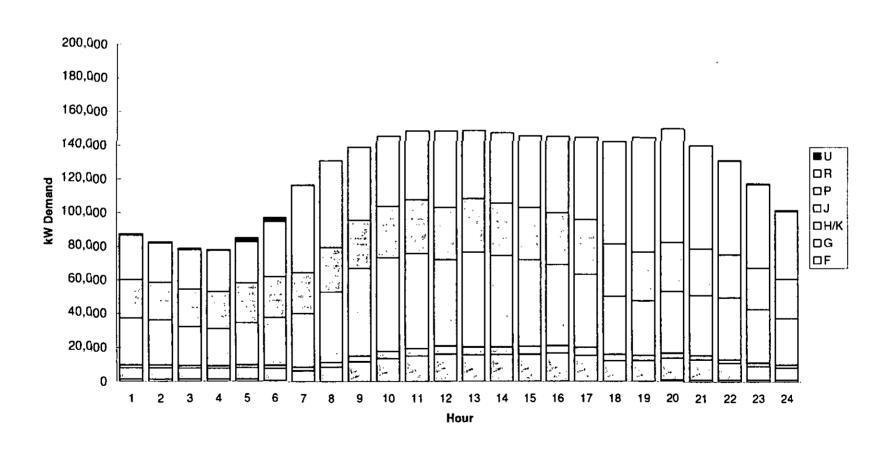


Exhibit 4.7 k

HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level

June 2002

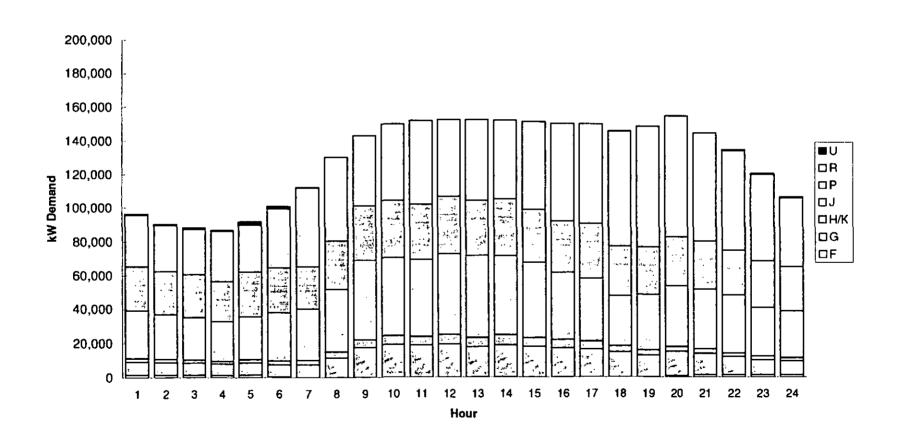


Exhibit 4.7 I
HOURLY CLASS LOAD FOR THE DAY OF THE DAY PEAK
Normalized at the Net-to-System Generation Level
July 2002

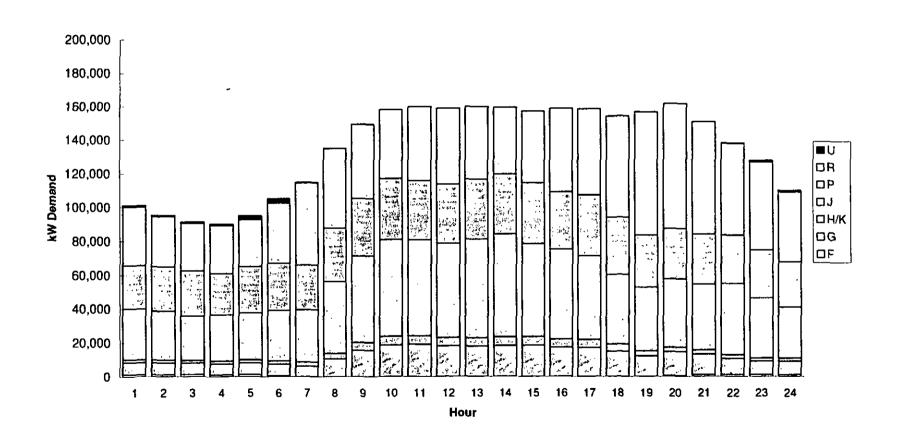


Table 4.9 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level August 2001

								System
HOUR		G	H/K	_ J	P	R	<u> </u>	Total
1	1.4	7.9	2.1	25.2	28.0	34.2	1.1	100 %
2	1.4	7.8	2.0	32.0	26.9	28.9	1.0	100
3	1.4	7.5	2.0	28.7	28.1	31.1	1.1	100
4	1.5	7.8	2.1	26.0	29.0	32.4	1.2	100
5	1.3	6.9	2.0	24.2	25.3	39.3	1.0	100
6 7	0.7	6.4	2.1	30.4	23.6	35.9	0.9	100
7	0.0	5.9	2.2	28.9	21.5	41.0	0.6	100
8	0.0	7.5	2.9	31.6	21.2	36.7	0.2	100
9	0.0	10.0	3.3	39.4	21.0	26.1	0.1	100
10	0.0	11.8	3.5	35.5	22.1	26.9	0.2	100
11	0.0	12.5	3.6	33.3	22.2	28.3	0.2	100
12	0.0	13.4	3.8	32.1	22.2	28.4	0.1	100
13	0.0	13.5	3.7	33.1	22.0	27.6	0.2	100
14	0.0	13.6	3.7	33.6	21.5	27.5	0.2	100
15	0.0	13.2	3.6	33.6	21.8	27.6	0.2	100
16	0.0	13.2	3.7	30.4	21.9	30.8	0.1	100
17	0.0	11.7	3.6	29.5	23.4	31.6	0.1	100
18	0.0	9.6	3.0	24.1	22.0	41.2	0.1	100
19	0.0	10.0	2.3	21.8	20.9	44.9	0.1	100
20	0.5	8.7	1.8	21.0	18.6	49.3	0.1	100
21	0.7	7.8	1.8	22.3	19.9	47.3	0.1	100
22	0.9	7.5	2.0	24.5	23.0	41.6	0.5	100
23	1.0	7.3	1.9	23.5	25.6	39.7	0.8	100
24	1.3	7.7	2.1	24.9	28.2	34.8	1.0	100
MIN	0.0	5.9	1.8	21.0	18.6	26.1	0.1	100
MAX	1.5	13.6	3.8	39.4	29.0	49.3	1.2	100
MEAN	0.5	9.6	2.7	28.7	23.3	34.7	0.5	100

The instantaneous system day peak of 156.7 MW occurred on August 27, 2001 @ 10:49.

Table 4.9 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level September 2001

								System
HOUR	F	G	H/K	J	P	R	<u> </u>	Total
1	1.4	8.3	2.3	24.9	29.5	32.6	1.0	100 %
2	1.5	8.2	2.3	26.5	29.6	30.9	1.0	100
3	1.6	8.6	2.3	25.4	31.4	29.6	1.1	100
4	1.5	8.6	2.3	24.4	31.0	30.7	1.5	100
5	1.4	8.2	2.2	23.9	28.5	34.4	1.4	100
6 7	0.8	7.3	2.3	25.1	25.3	38.1	1.1	100
7	0.0	6.6	2.2	25.2	21.8	43.5	0.8	100
8	0.0	7.6	2.5	30.5	20.4	38.1	0.9	100
9	0.0	10.2	3.2	35.2	22.6	26.9	1.9	100
10	0.0	11.3	3.5	32.9	21.7	29.0	1.7	100
11	0.0	11.1	3.4	34.1	20.9	28.9	1.6	100
12	0.0	11.8	3.5	33.2	21.0	28.9	1.6	100
13	0.0	12.1	3.7	33.4	21.9	27.8	1.1	100
14	0.0	12.6	3.7	34.6	22.3	26.7	0.0	100
15	0.0	11.8	3.7	33.9	22.0	28.7	0.0	100
16	0.0	12.2	3.6	30.4	22.3	31.4	0.0	100
17	0.0	11.2	3.5	28.8	23.1	33.4	0.0	100
18	0.0	9.8	3.0	21.5	22.1	43.6	0.0	100
19	0.2	8.9	2.2	22.1	20.6	46.0	0.0	100
20	0.8	9.2	2.0	21.6	20.8	45.6	0.0	100
21	0.9	9.4	2.1	23.2	22.0	42.5	0.0	100
22	0.9	7.8	2.0	26.0	22.9	40.0	0.4	100
23	1.0	7.5	1.9	25.5	23.3	39.9	0.9	100
24	1.2	7.9	2.1	27.7	26.5	33.5	1.1	100
MIN	0.0	6.6	1.9	21.5	20.4	26.7	0.0	100
MAX	1.6	12.6	3.7	35.2	31.4	46.0	1.9	100
MEAN	0.6	9.5	2.7	27.9	23.9	34,6	8.0	100

The instantaneous system day peak of 153.7 MW occurred on September 7, 2001 @ 10:32.

Table 4.9 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level October 2001

								System
HOUR	F	G	<u>H</u>	All J	All P	All R, E	U	<u>Total</u>
1	1.3	8.3	2.3	26.9	28.6	31.6	1.0	100 %
2	1.3	8.5	2.3	27.7	28.5	30.7	1.0	100
3	1,4	9.1	2.3	26.7	30.1	29.3	1.0	100
4	1.3	8.4	2.2	27.6	29.1	30.3	1.0	100
5	1.2	8.0	2.2	28.2	27.9	29.6	2.9	100
6	0.9	7.0	2.2	25.7	24.5	37.6	2.1	100
7	0.0	6.6	2.4	28.4	24.1	38.1	0.4	100
8	0.0	7.7	2.7	31.9	22.7	35.1	0.0	100
9	0.0	9.8	3.1	34.7	22.1	30.4	0.0	100
10	0.0	11.4	3.5	33.9	23.0	28.1	0.0	100
11	0.0	12.2	3.5	34.4	23.2	26.6	0.0	100
12	0.0	12.2	3.7	33.5	23.9	26.8	0.0	100
13	0.0	12.3	3.7	33.6	23.2	27.3	0.0	100
14	0.0	12.0	3.7	33.1	22.5	28.8	0.0	100
15	0.0	11.0	3.6	32.7	21.6	31.0	0.0	100
16	0.0	10.9	3.5	31.3	21.5	32.7	0.0	100
17	0.0	9.8	3.2	26.7	21.2	39.1	0.0	100
18	0.0	8.0	2.6	19.5	19.4	50.6	0.0	100
19	0.4	8.7	2.1	19.2	19.4	50.1	0.0	100
20	0.7	10.0	2.1	23.5	20.3	43.4	0,0	100
21	8.0	9.7	2.1	24.9	21.3	41.2	0.0	100
22	8.0	8.1	2.1	26.5	22.6	39.8	0.2	100
23	1.0	8.1	2.1	25.6	25.5	37.0	0.7	100
24	1.1	8.2	2.1	26.3	26.2	35.3	0.7	100
MIN	0.0	6.6	2.1	19.2	19.4	26.6	0.0	100
MAX	1.4	12.3	3.7	34.7	30.1	50.6	2.9	100
MEAN	0.5	9.4	2.7	28.4	23.9	34.6	0.5	100

The Instantaneous system day peak of 153.4 MW occurred on October 26, 2001 @ 11:04.

Table 4.9 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level November 2001

							•	System
<u>HOUR</u>	F	_ G	H/K	J	<u>P</u>	R	U	Total
1	1.2	7.8	2.1	30.0	25.9	32.4	0.7	100 %
2	1.4	8.4	2.3	28.2	27.3	31.8	0.7	100
3	1.4	8.5	2.3	27.3	28.3	31.6	0.7	100
4	1.3	8.1	2.2	29.7	27.9	29.9	0.7	100
5	1.2	7.5	2.1	26.6	26.2	33.9	2.3	100
6 7	1.0	6.7	2.3	25.4	24.4	39.2	1.1	100
	0.2	5.9	2.0	25.4	19.9	46.4	0.2	100
8	0.0	8.3	2.7	29.6	20.7	38.6	0.0	100
9	0.0	10.5	2.9	31.7	21.1	33.8	0.0	100
10	0.0	11.9	3.2	33.1	21.8	30.1	0.0	100
11	0.0	12.1	3.0	30.3	20 <u>.9</u>	33.7	0.0	100
12	0.0	12.7	2.8	29.9	20.6	34.0	0.0	100
13	0.0	12.4	2.9	30.1	19.6	35.0	0.0	100
14	0.0	12.3	3.2	31.3	20.8	32.5	0.0	100
15	0.0	12.6	3.1	28.4	19.5	36.3	0.0	100
16	0.0	12.1	3.3	28.6	20.4	35.7	0.0	100
17	0.0	10.1	2.7	24.5	19.6	43.1	0.0	100
18	0.0	8.7	2.2	20.2	18 <i>.</i> 7	50.3	0.0	100
19	0.6	8.0	1.8	19.5	17.4	52.8	0.0	100
20	0.7	8.5	1.6	21.2	17.8	50.2	0.0	100
21	0.8	8.6	1.7	22.7	19.9	46.4	0.0	100
22	8.0	6.9	1.7	23.6	20.5	46.2	0.3	100
23	1.1	7.6	2.0	23.7	24.3	40.8	0.6	100
24	1.3	8.5	2.1	26.0	26.8	34.7	0.7	100
MIN	0.0	5.9	1.6	19.5	17.4	29.9	0.0	100
MAX	1.4	12.7	3.3	33.1	28.3	52.8	2.3	100
MEAN	0.5	9.4	2.4	27.0	22.1	38.3	0.3	100

The instantaneous system day peak of 154.0 MW occurred on November 27, 2001 @ 11:07.

Table 4.9 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level December 2001

					•			
HOUR	F	G	H/K	J	Р	R	U	System <u>Total</u>
1	1.3	7.8	2.0	28.4	26.0	33.4	1.0	100 %
2	1.5	8.5	2.2	27.5	27.9	31.4	1.0	100
2 3	1.5	8.7	2.2	26.0	27.8	32.9	0.9	100
4	1.4	7.9	2.1	30.6	28.7	28.6	0.6	100
5	1.3	7.3	1.9	26.7	27.1	33.3	2.5	100
6	1.1	6.5	2.2	25.8	25.3	37.1	2.0	100
7	0.3	5.8	2.2	25.8	22.9	42.5	0.4	100
8	0.0	7.4	2.3	27.3	19.5	43.6	0.0	100
9	0.0	9.9	2.5	30.7	20.7	36.1	0.0	100
10	0.0	11.0	2.9	32.9	20.3	33.0	0.0	100
11	0.0	12.2	3.1	34.0	21.9	28.9	0.0	100
12	0.0	13.1	3.1	32.9	21.7	29.1	0.0	100
13	0.0	11.3	3.1	33.9	20.8	30.9	0.0	100
14	0.0	12.1	3.1	34.8	20.5	29.5	0.0	100
15	0.0	12.0	3.6	32.5	21.2	30.7	0.0	100
16	0.0	11.0	3.1	32.0	20.0	34.0	0.0	100
17	0.0	10.0	2.8	26.8	19.0	41.3	0.0	100
18	0.0	8.1	2.3	21.3	17.2	51.2	0.0	100
19	0.6	8.4	2.0	20.9	18.0	50.1	0.0	100
20	0.7	7.9	1.8	22.0	17.8	49.7	0.0	100
21	0.8	7.8	1.8	25.8	18.9	44.9	0.0	100 [,]
22	8.0	6.7	1.7	29.3	19.3	41.9	0.3	100
23	1.1	8.0	1.9	24.5	23.5	40.3	0.8	100
24	1.2	8.4	2.0	23.8	25.2	38.4	0.9	100
MIN	0.0	5.8	1.7	20.9	17.2	28.6	0.0	100
MAX	1.5	13.1	3.6	34.8	28.7	51.2	2.5	100
MEAN	0.6	9.1	2.4	28.2	22.1	37.2	0.4	100
MICHIA	5.0	J.,		3		- · · 		

The instantaneous system day peak of 152.4 MW occurred on December 13, 2001 @ 11:44.

Table 4.9 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level January 2002

								System
HOUR	<u> </u>	G	H/K	J	P	R	U	Total
1	1.2	7.9	1.8	29.5	26.0	32.6	1.1	100 %
2	1.3	8.3	1.9	27.8	28.0	31.5	1.2	100
3	1.3	8.1	1.8	26.7	27.4	31.3	3.3	100
4	1.3	7.7	1.7	25.8	26.5	33.1	3.9	100
5	1.2	7.4	1.7	24.8	25.8	35.4	3.7	100
6	1.0	6.3	1.8	24.2	23.0	40.8	2.8	100
7	0.5	6.2	2.0	27.7	22.6	40.5	0.7	100
8	0.0	7.6	2.4	27.7	21.4	40.9	0.0	100
9	0.0	10.1	2.8	30.2	21.1	35.8	0.0	100
10	0.0	11.2	3.0	30.5	21.1	34.2	0.0	100
11	0.0	11.6	3.2	31.8	21.2	32.1	0.0	100
12	0.0	12.8	3.5	32.4	22.5	28.8	0.0	100
13	0.0	11.6	3.4	32.0	20.9	32.2	0.0	100
14	0.0	10.7	3.5	33.5	20.7	31.6	0.0	100
15	0.0	10.9	3.4	30.2	21.0	34.4	0.0	100
16	0.0	10.3	3.3	29.5	19.9	37.0	0.0	100
17	0.0	9.2	3.2	27.4	20.5	39.8	0.0	100
18	0.0	8.2	2.5	20.4	20.1	48.7	0.0	100
19	0.3	7.8	1.8	18.0	17.2	54.9	0.0	100
20	0.6	7.9	1.7	23.0	18.5	48.2	0.0	100
21	0.7	8.2	1.7	22.4	19.7	47.3	0.0	100
22	0.8	7.4	1.6	22.4	21.1	46.4	0.4	100
23	0.9	7.0	1.6	28.0	22.4	39.4	0.8	100
24	1.0	7.8	1.7	28.0	25.3	35.2	1.0	100
MIN	0.0	6.2	1.6	18.0	17.2	28.8	0.0	100
MAX	1.3	12.8	3.5	33.5	28.0	54.9	3.9	100
MEAN	0.5	8.8	2.4	27.2	22.2	38.0	0.8	100

The instantaneous system day peak of 149.5 MW occurred on January 7, 2002 @ 11:18.

Table 4.9 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level February 2002

								System
HOUR	F	G	H/K_	J	P	R	U	Total
1	1.3	7.8	1.8	27.3	25.9	35.3	0.6	100 %
2	1.4	8.6	1.9	26.2	28.5	32.6	0.8	100
3	1.4	8.1	1.9	25.1	28.9	33.9	0.7	100
4	1.4	7.8	1.9	28.6	28.7	30.9	0.7	100
5	1.3	7.6	1.9	25.6	27.4	33.7	2.5	100
6	1.1	7.0	2.1	25.4	26.3	35.4	2.6	100
7	0.4	6.6	2.1	25.4	23.4	42.1	0.1	100
8	0.0	6.5	2.0	25.6	19.8	46.1	0.0	100
9	0.0	8.6	2.6	31.4	20.8	36.6	0.0	100
10	0.0	10.6	3.1	31.7	21.2	33.3	0.0	100
11	0.0	10.8	3.2	34.2	21.4	30.4	0.0	100
12	0.0	11.1	3.3	33.6	21.5	30.6	0.0	100
13	0.0	10.6	3.1	33.5	20.9	31.9	0.0	100
14	0.0	10.7	3.3	34.7	22.4	28.8	0.0	100
15	0.0	10.8	3.2	33.3	22.1	30.6	0.0	100
16	0.0	11.3	3.0	31.4	22.0	32.2	0.0	100
17	0.0	11.2	2.9	27.4	23.0	35.5	0.0	100
18	0.0	9.2	2.3	22.5	21.1	44.8	0.0	100
19	0.2	9.0	1.8	20.3	18.7	50.0	0.0	100
20	0.7	8.1	1.7	23.0	18.4	48.2	0.0	100
21	0.7	7.7	1.6	24.3	19.7	45.9	0.0	100
22	0.8	7.1	1.8	26.6	21.7	41.9	0.1	100
23	1.0	7.0	1.7	27.1	23.6	39.1	0.6	100
24	1.2	7.4	1.8	28.1	25.7	35.1	0.6	100
MIN	0.0	6.5	1.6	20.3	18.4	28.8	0.0	100
MAX	1.4	11.3	3.3	34.7	28.9	50.0	2.6	100
MEAN	0.5	8.8	2.3	28.0	23.0	36.9	0.4	100

The instantaneous system day peak of 147.4 MW occurred on February 19, 2002 @ 10:38.

Table 4.9 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level

March 2002

								System
HOUR	F	G _	H/K	J	P	R	U	Total
1	1.4	8.3	1.8	30.6	27.1	30.0	0.7	100 %
2	1.6	8.9	1.8	28.8	29.0	29.2	0.8	100
3	1.6	8.9	1.8	29.5	28.2	29.4	0.8	100
4	1.5	8.5	1.8	31.2	27.9	28.3	0.7	100
5	1.4	7.7	1.7	28.0	26.5	32.1	2.7	100
6	1.2	6.8	1.9	28.6	24.0	35.5	2.0	100
6 7	0.0	5.7	1.7	27.0	19.9	45.4	0.2	100
8	0.0	6.9	1.8	29.3	18.3	43.6	0.0	100
9	0.0	9.6	2.6	34.6	20.6	32.5	0.0	100
10	0.0	10.9	2.8	32.8	20.3	33.2	0.0	100
11	0.0	10.6	2.8	34.7	19.4	32.4	0.0	100
12	0.0	11.6	2.7	33.1	19.8	32.8	0.0	100
13	0.0	12.2	2.7	34.6	20.2	30.2	0.0	100
14	0.0	12.6	2.9	33.4	19.7	31.4	0.0	100
15	0.0	13.2	3.1	36.8	20.6	26.5	0.0	100
16	0.0	12.4	3.1	31.0	20.9	32.6	0.0	100
17	0.0	11.0	2.9	26.5	20.9	38.7	0.0	100
18	0.0	8.4	2.4	21.7	19.1	48.4	0.0	100
19	0.1	8.3	2.1	22.0	20.0	47.6	0.0	100
20	0.8	8.6	1.8	22.8	20.2	45.9	0.0	100
21	0.9	8.7	1.8	25.4	21.1	42.1	0.0	100
22	0.9	7.8	1.6	27.5	21.0	41.0	0.2	100
23	1.0	7.5	1.7	24.7	22.9	41.6	0.6	100
24	1.1	8.0	1.6	26.0	23.3	39.3	0.6	100
MIN	0.0	5.7	1.6	21.7	18.3	26.5	0.0	100
MAX	1.6	13.2	3.1	36.8	29.0	48.4	2.7	100
MEAN	0.6	9.3	2.2	29.2	22.1	36.2	0.4	100

The instantaneous system day peak of 147.3 MW occurred on March 15, 2002 @ 10:09.

Table 4.9 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level April 2002

								System
HOUR	F	G	<u>H/K</u>	J	P	R	U	Total
1	1.2	7.1	1.8	29.2	24.7	35.4	0.6	100 %
2	1.3	7.5	1.9	30.4	26.5	31.7	0.7	100
3	1.4	7.6	1.9	29.4	28.3	30.5	0.7	100
4	1.4	8.2	2.0	27.1	29.3	31.2	0.7	100
5	1.4	7.8	2.1	26.7	28.8	30.5	2.8	100
6 7	0.7	6.6	2.1	27.3	25.8	35.5	2.0	100
7	0.0	6.1	2.1	26.6	23.0	42.0	0.2	100
8	0.0	6.5	2.4	29.4	20.3	41.3	0.0	100
9	0.0	9.3	3.2	36.9	22.1	28.5	0.0	. 100
10	0.0	10.7	3.6	37.2	22.0	26.5	0.0	100
11	0.0	10.8	3.4	37.2	21.6	27.0	0.0	100
_12	0.0	11.1	3.4	34.9	21.9	28.7	0.0	100
13	0.0	11.1	3.4	37.5	21.8	26.3	0.0	100
14	0.0	11.1	3.4	36.8	21.6	27.2	0.0	100
15	0.0	11.5	3.3	36.3	21.7	27.2	0.0	100
16	0.0	11.2	3.3	32.8	21.9	30.8	0.0	100
17	0.0	10.0	3.1	29.3	22.1	35.5	0.0	100
18	0.0	8.5	2.7	25.3	22.7	40.8	0.0	100
19	0.0	7.6	2.2	26.7	21.7	41.8	0.0	100
20	0.6	9.0	1.6	24.3	18.5	46.0	0.0	100
21	0.7	8.1	1.7	24.2	19.2	46.1	0.0	100
22	0.8	7.1	1.7	26.7	21.4	41.9	0.4	100
23	1.0	6.9	1.8	26.0	25.3	38.2	0.9	100
24	1.2	7.2	1.8	28.1	28.5	32.1	1.0	100
MIN	0.0	6.1	1.6	24.2	18.5	26.3	0.0	100
MAX	1.4	11.5	3.6	37.5	29.3	46.1	2.8	100
MEAN	0.5	8.7	2.5	30.3	23.4	34.3	0.4	100

Table 4.9 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level May 2002

								System
HOUR	F	G	H/K	J	Р	<u>R</u>	U	Total
1	1.5	7.7	2.0	31.6	26.1	30.4	0.8	100 %
2	1.5	8.2	2.1	32.1	26.7	28.7	0.8	100
3	1.6	8.2	2.2	28.8	28.1	30.3	0.8	100
4	1.6	8.2	2.1	27.7	28.0	31.6	0.7	100
5	1.5	8.1	2.0	29.0	27.7	28.9	2.9	100
5 6	0.4	7.3	2.1	29.0	25.0	33.9	2.5	100
7	0.0	5.7	2.0	26.7	21.2	44.2	0.2	100
8	0.0	6.8	2.2	31.5	20.5	39.1	0.0	100
9	0.0	8.4	2.5	37.2	20.8	31.1	0.0	100
10	0.0	9.4	2.9	38.3	20.9	28.5	0.0	100
11	0.0	10.2	3.0	37.9	21.3	27.6	0.0	100
12	0.0	10.9	3.3	34.4	21.0	30.4	0.0	100
13	0.0	10.6	3.3	37.6	21.3	27.2	0.0	100
14	0.0	10.8	3.1	36.7	21.1	28.2	0.0	100
15	0.0	11.1	3.2	35.2	21.3	29.2	0.0	100
16	0.0	11.4	3.3	33.0	21.2	31.1	0.0	100
17	0.0	10.7	3.3	29.8	22.7	33.5	0.0	100
18	0.0	8.7	2.7	24.0	22.0	42.6	0.0	100
19	0.0	8.6	2.1	22.2	20.1	47.0	0.0	100
20	0.6	8.7	1.9	24.4	19.6	44.8	0.0	100
21	0.9	8.5	1.8	25.4	19.8	43.6	0.0	100
22	0.9	7.5	1.6	28.0	19.5	42.2	0.3	100
23	1.0	7.0	1.6	26.8	21.2	41.8	0.5	100
24	1.2	7.0	1.8	27.3	22.8	39.4	0.6	100
MIN	0.0	5.7	1.6	22.2	19.5	27.2	0.0	100
MAX	1.6	11.4	3.3	38.3	28.1	47.0	2.9	100
MEAN	0.5	8.7	2.4	30.6	22.5	34.8	0.4	100

Table 4.9 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level June 2002

								System
HOUR	F	G	<u>H/K</u>		<u> </u>	<u> </u>	<u> </u>	<u>Total</u>
1	1.5	8.0	1.9	29.1	27.1	31.5	0.9	100 %
2	1.6	8.2	2.0	28.9	28.1	30.1	0.9	100
3	1.6	8.2	2.0	28.1	28.8	30.4	0.9	100
4	1.6	7.7	1.9	26.7	27.1	34.3	0.7	100
5	1.6	7.9	2.1	27.3	28.9	30.0	2.3	100
5 6	0.4	7.1	2.3	27.8	26.5	34.2	1.7	100
7	0.0	6.7	2.3	26.8	22.3	41.6	0.3	100
8	0.0	8.7	2.7	28.2	22.0	38.3	0.0	100
9	0.0	12.2	3.3	32.7	22.5	29.3	0.0	100
10	0.0	12.8	3.5	30.8	22.4	30.5	0.0	100
11	0.0	12.5	3.3	29.9	21.4	32.9	0.0	100
12	0.0	12.8	3.6	31.4	22.2	30.1	0.0	100
13	0.0	11.7	3.6	31.8	21.2	31.7	0.0	100
14	0.0	12.4	3.9	30.8	22.1	30.8	0.0	100
15	0.0	11.9	3.5	29.3	20.6	34.7	0.0	100
16	0.0	11.4	3.3	26.3	20.2	38.8	0.0	100
17	0.0	10.9	3.1	24.9	21.5	39.6	0.0	100
18	0.0	10.1	2.6	20.0	20.3	46.9	0.0	100
19	0.0	8.6	2.1	21.9	19.0	48.3	0.0	100
20	0.5	9.2	1.8	23.3	18.7	46.5	0.0	100
21	0.9	8.7	1.8	24.3	19.7	44.6	0.0	100
22	0.9	7.9	1.7	25.2	19.9	44.0	0.4	100
23	1.1	7.4	1.8	23.8	23.0	42.5	0.5	100
24	1.3	7.5	1.9	25.6	25.1	38.1	0.5	100
MIN	0.0	6.7	1.7	20.0	18.7	29.3	0.0	100
MAX	1.6	12.8	3.9	32.7	28.9	48.3	2.3	100
MEAN	0.5	9.6	2.6	27.3	22.9	36.7	0.4	100

Table 4.9 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK kW Demand as a Percent of the System, Normalized at the Net-to-System Generation Level July 2002

								System
HOUR	<u> </u>	G	H/K	J	Р	R	U	Total
1	1.1	7.2	1.7	29.6	25.4	34.1	0.8	100 %
2	1.3	7.4	1.8	30.1	27.5	31.0	0.9	100
3	1.3	7.6	1.8	28.4	29.3	30.6	0.9	100
4	1.3	7.3	1.8	30.2	27.1	31.3	0.9	100
5	1.3	7.4	2.0	29.0	28.8	29.0	2.5	100
6	0.5	6.7	2.1	28.0	26.6	33.7	2.4	100
7	0.0	5.6	2.0	26.9	22.9	42.1	0.5	100
8	0.0	8.0	2.5	31.4	23.2	35.0	0.0	100
9	0.0	10.6	3.0	34.0	22.7	29.6	0.0	100
10	0.0	11.9	3.2	36.0	22.9	25.9	0.0	100
11	0.0	12.0	3.1	35.4	21.8	27.7	0.0	100
12	0.0	11.4	3.2	34.8	22.0	28.5	0.0	100
13	0.0	11.3	3.1	36.2	22.0	27.4	0.0	100
14	0.0	11.6	3.2	37.9	22.3	25.1	0.0	100
15	0.0	11.8	3.3	34.9	22.7	27.3	0.0	100
16	0.0	10.9	3.1	33.4	21.3	31.3	0.0	100
17	0.0	10.8	3.0	31.1	22.6	32.4	0.0	100
18	0.0	9.7	2.8	26.5	21.9	39.0	0.0	100
19	0.0	7.8	2.0	23.9	19.6	46.8	0.0	100
20	0.4	8.7	1.6	24.9	18.3	46.0	0.0	100
21	0.7	8.2	1.6	25.5	19.6	44.3	0.0	100
22	0.8	7.0	1.6	30.4	20.7	39.2	0.3	100
23	0.9	6.3	1.5	27.8	22.2	40.7	0.6	100
24	1.0	7.3	1.6	27.4	24.4	37.4	8.0	100
MIN	0.0	5.6	1.5	23.9	18.3	25.1	0.0	100
MAX	1.3	12.0	3.3	37.9	29.3	46.8	2.5	100
MEAN	0.4	8.9	2.4	30.6	23.2	34.0	0.4	100

The instantaneous system day peak of 161.4 MW occurred on July 31, 2002 @ 10:13.

Table 4.10 a

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
Non-normalized at the Net-to-System Generation Level

August 2001

							(Constructed	Actual	
	_	_			_	_		System	System	Percent
HOUR	<u> </u>	G	н	J	P	<u> </u>	U	Total	Total	Error
1	1,183	6,563	1,790	21,043	23,362	28,558	946	83,446	89,154	- 6.4
2	1,183	6,697	1,704	27,550	23,170	24,903	900	86,109	85,609	+ 0.6
3	1,183	6,226	1,683	23,857	23,295	25,849	944	83,037	83,739	- 0.8
4	1,183	6,217	1,703	20,706	23,031	25,797	917	79,554	82,977	- 4.1
5	1,183	6,294	1,845	22,157	23,223	36,077	925	91,704	85,926	+ 6.7
6	710	6,935	2,300	33,030	25,639	39,011	933	108,559	98,637	+ 10.1
7	0	7,413	2,747	36,406	27,129	51,756	704	126,154	119,863	+ 5.2
8	0	9,971	3,844	42,216	28,321	48,967	231	133,550	132,428	+ 0.8
9	0	14,736	4,792	58,060	30,913	38,486	219	147,206	146,001	+ 0.8
10	_0_	17,736	5,274	53,135	33,109	40,21 <u>4</u>	_227	14 <u>9,69</u> 5	152,834	- 2.1
11	0	19,091	5,487	50,683	33,726	43,029	239	152,255	154,631	- 1.5
12	0	20,581	5,779	49,360	34,087	43,752	230	153,788	154,705	- 0.6
13	0	20,492	5,582	50,352	33,554	42,008	229	152,217	154,707	- 1.6
14	0	21,144	5,764	52,195	33,404	42,803	257	155,567	154,966	+ 0.4
15	0	20,285	5,564	51,576	33,390	42,294	258	153,368	153,970	- 0.4
16	0	20,111	5,603	46,386	33,437	46,977	208	152,722	154,536	- 1.2
17	0	17,050	5,188	42,841	33,995	45,957	182	145,213	153,937	- 5.7
18	0	14,234	4,496	35,960	32,780	61,298	181	148,949	151,040	- 1.4
19	. 0	15,643	3,573	33,926	32,655	69,978	180	155,956	156,354	- 0.3
20	947	15,318	3,185	36,895	32,693	86,644	181	175,862	165,403	+ 6.3
21	1,183	12,419	2,935	35,470	31,696	75,319	181	159,203	152,805	+ 4.2
22	1,183	9,895	2,637	32,503	30,485	55,165	642	132,509	138,992	- 4.7
23	1,183	8,280	2,196	26,755	29,178	45,216	963	113,771	120,687	- 5.7
24	1,183	7,304	2,013	23,485	26,671	32,827	963	94,446	104,527	- 9.6
TOTAL	12,306	310,633	87,683	906,548	712,942	1,092,886	11,842	3,134,840	3,148,429	- 0.4
MIN	0	6,217	1,683	20,706	23,031	24,903	180	79,554	82,977	- 9.6
MAX	1,183	21,144	5,779	58,060	34,087	86,644	963	175,862	165,403	+ 10.1
MEAN	513	12,943	3,653	37,773	29,706	45,537	493	130,618	131,185	- 0.5

Table 4.10 b

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK Non-normalized at the Net-to-System Generation Level

September 2001

							•	Constructed	Actual	
	_	_			_			System	System	Percent
HOUR	F	G	_ H	J	P	R	ນ	Total	Total	Error
1	1,121	6,472	1,758	19,440	22,993	25,467	753	78,005	86,580	- 9.9
2	1,121	6,181	1,763	19,903	22,240	23,250	787	75,245	81,733	- 7.9
3	1,121	6,168	1,622	18,134	22,400	21,147	805	71,398	80,399	- 11.2
4	1,121	6,262	1,664	17,775	22,636	22,407	1,097	72,964	80,435	- 9.3
5	1,121	6,665	1,827	19,398	23,172	27,978	1,114	81,275	84,532	- 3.9
6	804	7,063	2,205	24,400	24,688	37,153	1,079	97,391	96,758	+ 0.7
7	0	7,912	2,589	30,273	26,200	52,190	943	120,107	117,280	+ 2.4
8	0	10,485	3,491	42,164	28,242	52,784	1,302	138,468	129,831	+ 6.7
9	0	13,937	4,352	48,022	30,826	36,709	2,549	136,396	139,507	- 2.2
10	0	16,575	5,110	48,434	31,895	42,753	2,499	147,265	144,014	+ 2.3
11	0	17,588	5,381	53,872	33,045	45,621	2,507	158,013	148,086	+ 6.7
12	0	18,475	5,539	52,206	33,069	45,457	2,447	157,193	147,721	+ 6.4
13	0	18,060	5,454	49,830	32,710	41,549	1,717	149,318	145,359	+ 2.7
14	0	18,328	5,443	50,333	32,500	38,876	5	145,485	145,086	+ 0.3
15	0	17,134	5,401	49,360	31,990	41,846	5	145,736	144,746	+ 0.7
16	0	17,435	5,152	43,258	31,813	44,730	5	142,394	143,504	- 0.8
17	0	15,146	4,716	38,998	31,277	45,108	5	135,250	141,652	- 4.5
18	0	13,629	4,128	29,744	30,645	60,306	5	138,458	138,165	+ 0.2
19	243	13,406	3,332	33,432	31,099	69,438	5	150,954	144,153	+ 4.7
20	1,121	13,771	2,961	32,215	31,133	68,199	5	149,406	148,226	+ 0.8
21	1,121	12,363	2,763	30,587	28,957	55,965	5	131,762	137,554	- 4.2
22	1,121	9,634	2,506	32,137	28,330	49,401	447	123,578	129,429	- 4.5
23	1,121	8,488	2,136	29,092	26,578	45,442	1,057	113,915	116,583	- 2.3
24	1,121	7,332	1,992	25,779	24,597	31,108	1,059	92,988	102,436	- 9.2
TOTAL	12,259	288,507	83,286	838,786	683,034	1,024,884	22,204	2,952,960	2,973,769	- 0.7
MIN	0	6,168	1,622	17,775	22,240	21,147	5	71,398	80,399	- 11.2
MAX	1,121	18,475	5,539	53,872	33,069	69,438	2,549	158,013	148,226	+ 6.7
MEAN	511	12,021	3,470	34,949	28,460	42,703	925	123,040	123,907	- 1.5

Table 4.10 c

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK Non-normalized at the Net-to-System Generation Level

October 2001

							4	Constructed	Actual	
								System	System	Percent
HOUR	<u>F</u>	G	<u> </u>	J	P	R	U	Total	Total	Error
1	1,026	6,743	1,873	21,828	23,154	25,652	799	81,075	91,706	- 11.6
2	1,026	6,679	1,775	21,711	22,400	24,090	779	78,460	86,441	- 9.2
3	1,026	6,770	1,743	19,951	22,524	21,920	773	74,706	84,142	- 11.2
4	1,026	6,596	1,753	21,613	22,781	23,736	780	78,285	83,689	- 6.5
5	1,026	6,712	1,867	23,610	23,314	24,785	2,390	83,704	88,311	- 5.2
6	872	7,078	2,237	26,038	24,845	38,125	2,080	101,275	98,889	+ 2.4
7	0	7,251	2,635	31,086	26,395	41,667	464	109,497	119,205	- 8.1
8	0	9,569	3,384	39,694	28,225	43,674	4	124,551	131,281	- 5.1
9	0	13,406	4,209	47,557	30,244	41,592	4	137,012	140,285	- 2.3
10	0	16,188	4,968	48,158	32,627	39,905	4	141,851	147,401	- 3.8
11	0	17,799	5,137	50,034	33,751	38,640	4	145,365	150,703	- 3.5
12	0	17,160	5,245	47,242	33,754	37,794	4	141,199	150,407	- 6.1
13	0	17,523	5,220	47,805	32,959	38,799	4	142,309	149,472	- 4.8
14	0	17,162	5,250	47,527	32,366	41,286	4	143,594	148,896	- 3.6
15	0	16,133	5,346	47,978	31,697	45,545	4	146,704	147,385	- 0.5
16	0	16,340	5,281	46,774	32,031	48,877	4	149,306	149,112	+ 0.1
17	0	14,487	4,765	39,632	31,467	58,044	4	148,398	148,444	+ 0.0
18	0	12,835	4,096	31,166	30,977	80,945	4	160,022	148,194	+ 8.0
19	650	13,765	3,371	30,240	30,627	79,107	4	157,764	156,126	+ 1.0
20	1,026	14,503	3,012	33,953	29,450	62,798	4	144,747	146,435	- 1.2
21	1,026	12,743	2,729	32,673	27,926	53,964	4	131,065	137,313	- 4.5
22	1,026	9,755	2,494	32,041	27,325	48,156	272	121,070	126,959	- 4.6
23	1,026	8,380	2,169	26,653	26,555	38,523	697	104,002	115,034	- 9.6
24	1,026	7,577	1,956	24,210	24,058	32,487	658	91,973	100,158	- 8.2
TOTAL	11,780	283,154	82,515	839,175	681,452	1,030,110	9,749	2,937,933	3,045,987	- 3.5
MIN	0	6,596	1,743	19,951	22,400	21,920	4	74,706	83,689	- 11.6
MAX	1,026	17,799	5,346	50,034	33,754	80,945	2,390	160,022	156,126	+ 8.0
MEAN	491	11,798	3,438	34,966	28,394	42,921	406	122,414	126,916	- 4.1

Table 4.10 d

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK Non-normalized at the Net-to-System Generation Level

November 2001

								Constructed	Actual	
								System	System	Percent
HOUR	F	G	H	J	P	R	U	Total	Total	Error
1	1,038	6,510	1,737	25,054	21,641	27,047	551	83,579	86,043	- 2.9
2	1,038	6,465	1,737	21,593	20,877	24,360	540	76,610	80,906	- 5.3
3	1,038	6,352	1,700	20,453	21,194	23,712	540	74,988	79,397	- 5.6
4	1,038	6,274	1,733	22,980	21,612	23,143	562	77,340	79,834	- 3.1
5	1,038	6,493	1,814	22,918	22,567	29,174	2,000	86,004	85,836	+ 0.2
6	1,038	6,790	2,316	25,952	24,876	40,022	1,083	102,076	98,290	+ 3.9
7	311	7,785	2,688	33,734	26,483	61,732	323	133,055	120,530	+ 10.4
8	0	11,027	3,626	39,321	27,550	51,349	4	132,877	133,224	- 0.3
9	0	15,101	4,235	45,615	30,319	48,621	4	143,896	144,690	- 0.5
10	0	17,057	4,566	47,596	31,343	43,277	4	143,843	150,490	- 4.4
11	0_	17,563	<u>4</u> ,400	43,965	30,333	48,847	4	145,112	149,127	- 2.7
12	0	19,633	4,356	46,270	31,859	52,632	4	154,754	152,099	+ 1.7
13	0	18,007	4,260	43,495	28,332	50,563	4	144,661	150,161	- 3.7
14	0	17,768	4,590	45,339	30,164	47,071	4	144,937	148,112	- 2.1
15	0	18,777	4,700	42,459	29,186	54,294	4	149,419	144,361	+ 3.5
16	0	17,108	4,603	40,379	28,897	50,418	4	141,410	146,446	- 3.4
17	0	15,128	4,049	36,837	29,370	64,784	4	150,173	154,531	- 2.8
18	0	13,356	3,332	31,000	28,726	77,352	4	153,771	162,457	- 5.3
19	917	13,055	2,850	31,805	28,241	85,853	4	162,725	166,267	- 2.1
20	1,038	13,177	2,531	32,963	27,696	77,932	4	155,341	154,024	+ 0.9
21	1,038	11,385	2,223	30,242	26,515	61,729	4	133,136	139,500	- 4.6
22	1,038	8,670	2,112	29,686	25,767	57,961	340	125,572	123,943	+ 1.3
23	1,038	7,543	1,960	23,380	24,004	40,291	549	98,764	107,299	- 8.0
24	1,038	7,012	1,701	21,393	22,063	28,573	560	82,339	92,737	- 11.2
TOTAL	12,643	288,037	73,819	804,428	639,615	1,170,736	7,105	2,996,383	3,050,303	- 1.8
MIN	0	6,274	1,700	20,453	20,877	23,143	4	74,988	79,397	- 11.2
MAX	1,038	19,633	4,700	47,596	31,859	85,853	2,000	162,725	166,267	+ 10.4
MEAN	527	12,002	3,076	33,518	26,651	48,781	296	124,849	127,096	- 1.9

Table 4.10 e

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

Non-normalized at the Net-to-System Generation Level

December 2001

								Constructed	Actual	
								System	System	Percent
HOUR	F	G	H	J	P	R	<u> </u>	Total	Total	Error
1	1,064	6,399	1,664	23,215	21,264	27,281	828	81,715	84,552	- 3.4
2	1,064	6,204	1,620	19,965	20,232	22,764	762	72,611	78,572	- 7.6
3	1,064	6,180	1,595	18,558	19,819	23,423	614	71,254	74,758	- 4.7
4	1,064	5,828	1,508	22,433	21,108	21,008	476	73,425	75,319	- 2.5
5	1,064	5,899	1,572	21,696	21,956	26,986	1,989	81,161	82,848	- 2.0
6	1,064	6,239	2,076	24,811	24,314	35,672	1,968	96,144	95,106	+ 1.1
7	390	6,742	2,492	29,793	26,414	49,053	516	115,399	116,377	- 0.8
8	0	10,273	3,157	38,051	27,240	60,787	4	139,511	131,186	+ 6.3
9	0	14,122	3,502	43,800	29,564	51,484	4	142,476	138,589	+ 2.8
10	0	16,056	4,174	48,169	29,690	48,285	4	146,379	142,616	+ 2.6
11	0	16,653	4,166	46,378	29,858	39,413_	4	136,472	143,329	- 4.8
12	0	17,950	4,288	45,052	29,704	39,895	4	136,893	147,365	- 7.1
13	0	16,337	4,440	49,136	30,083	44,734	4	144,734	143,895	+ 0.6
14	0	17,214	4,463	49,629	29,317	42,089	4	142,715	143,376	- 0.5
15	0	15,613	4,715	42,421	27,705	40,033	4	130,491	137,987	- 5.4
16	0	16,154	4,515	47,029	29,400	49,994	4	147,095	141,911	+ 3.7
17	0	14,739	4,105	39,443	27,985	60,719	4	146,995	146,449	+ 0.4
18	0	13,053	3,673	34,284	27,604	82,329	4	160,947	155,070	+ 3.8
19	886	12,771	3,064	31,678	27,337	76,154	4	151,894	166,471	- 8.8
20	1,064	11,858	2,747	32,874	26,598	74,321	4	149,466	155,807	- 4.1
21	1,064	10,474	2,478	34,717	25,387	60,376	7	134,503	141,058	- 4.6
22	1,064	8,633	2,137	37,488	24,718	53,751	350	128,140	126,315	+ 1.4
23	1,064	8,091	1,941	24,722	23,667	40,591	764	100,840	113,411	- 11.1
24	1.064	7,367	1,727	20,825	22,066	33,582	817	87,447	95,975	- 8.9
TOTAL	12,976	270,850	71,819	826,166	623,030	1,104,724	9,142	2,918,706	2,978,342	- 2.0
MIN	0	5,828	1,508	18,558	19,819	21,008	4	71,254	74,758	- 11.1
MAX	1,064	17,950	4,715	49,629	30,083	82,329	1,989	160,947	166,471	+ 6.3
MEAN	541	11,285	2,992	34,424	25,960	46,030	381	121,613	124,098	- 2.2

Table 4.10 f

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

Non-normalized at the Net-to-System Generation Level

January 2002 Constructed Actual System System Percent HOUR F G н Р R U Total Total Error 997 6,507 1,439 24,203 21,361 26,759 906 82,173 85,520 - 3.9 2 997 1,389 20,710 20,913 6,167 23,508 890 74,573 80.365 - 7.2 3 997 6,105 1,369 20,058 20.564 75.060 79,002 23,527 2.441 - 5.0 4 997 20.591 6,178 1.358 21,092 26,373 3,149 79,739 79,225 +0.65 997 6,291 1,470 20,992 21,819 29,906 3,118 84,593 82,618 +2.46 997 1.855 24.639 23,397 101,618 6.446 41,446 2,840 93,811 +8.37 532 2,243 7,100 31.676 25,825 46,327 771 114,472 105,677 +8.3 8 9,427 3,008 34,459 26,698 50.969 124,565 124,689 - 0.1 Q 5 9 0 13,735 40,925 28,577 5 135,551 3.842 48,467 133.552 +1.5143,754 10 0 16.035 4.378 43.842 30,371 49,124 142,107 +1.20 17,168 4,755 46,910 31,228 47,388 5 147,454 146,697 +0.511 12 0 17,718 4,873 44,855 31,203 39,875 5 138,528 147,093 - 5.8 13 0 17,369 5,051 48,045 31,354 48,273 5 150,096 146,511 + 2.4 14 0 15.930 5.178 49,887 30,798 47.032 5 148,830 146.012 +1.9144,174 15 0 16,081 5.062 44,484 30,826 50.672 5 147,129 +2.016 0 15,903 5,121 45,691 30,799 57,321 5 154,839 144,116 +7.417 0 13.677 4.747 40.775 30,466 59.215 5 148,887 144,466 +3.1148,704 +3.518 0 12,133 3,770 30,398 29,912 72,485 5 143.683 19 532 13,505 3,099 31,074 29,626 94,679 5 172,518 164,882 + 4.6 2,730 36.454 29,238 5 158.359 160,090 - 1.1 20 997 12,565 76.370 5 140,449 143,359 - 2.0 21 997 11,566 2,329 31,496 27,661 66,396 126,263 - 2.8 2.049 28.273 26.629 58.555 459 129,955 22 997 9,301 114,255 - 2.2 1,830 31,241 25,018 44,002 916 111,773 23 997 7,769 997 1,590 26,695 24,157 33,630 952 95,448 97,672 - 2.3 24 7,428 16,509 3,005,376 2,979,531 +0.9**TOTAL** 12,029 272,104 74,534 818,372 649,530 1,162,300 20,058 20,564 23,508 5 74,573 79,002 - 7.2 MIN 0 6,105 1,358 172,518 164,882 + B.35,178 49,887 31,354 94,679 3,149 MAX 997 17,718 688 125,224 124,147 +0.63.106 34,099 27,064 48,429 MEAN 501 11,338

Table 4.10 g

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK Non-normalized at the Net-to-System Generation Level

February 2002

					•			Constructed	Actual	
	_	_						System	System	Percent
HOUR	F_	G	н	J_	P	R	<u> </u>	Total	_ Total	Error
1	1,074	6,602	1,508	22,991	21,823	29,711	543	84,252	86,563	- 2.7
2	1,074	6,473	1,472	19,745	21,506	24,645	572	75,488	81,833	- 7.8
3	1,074	6,010	1,409	18,675	21,553	25,301	519	74,541	79,177	- 5.9
4	1,074	5,887	1,455	21,625	21,704	23,329	501	75,574	79,204	- 4.6
5	1,074	6,286	1,551	21,291	22,790	28,026	2,045	83,064	84,704	- 1.9
6	1,074	6,581	1,984	23,809	24,602	33,129	2,461	93,640	96,821	- 3.3
7	430	7,444	2,321	28,632	26,360	47,422	114	112,722	114,679	- 1.7
8	0	8,967	2,773	35,548	27,450	63,929	4	138,673	128,783	+ 7.7
9	0	12,096	3,695	44,156	29,285	51,421	4	140,657	136,499	+ 3.0
10	00	15,472	4,571	46,182	30,907	48,569	4	145,705	142,760	+ 2.1
11	0	15,801	4,652	50,203	31,346	44,658	4	146,666	145,088	+ 1.1
12	0	16,383	4,873	49,774	31,777	45,247	4	148,058	144,832	+ 2.2
13	0	16,104	4,741	50,742	31,690	48,349	4	151,631	145,112	+ 4.5
14	0	15,280	4,742	49,390	31,960	41,034	4	142,411	145,862	- 2.4
15	0	15,291	4,617	47,364	31,398	43,503	4	142,178	143,179	- 0.7
16	0	15,995	4,258	44,249	31,082	45,399	4	140,986	142,725	- 1.2
17	0	14,922	3,818	36,441	30,553	47,266	4	133,005	144,758	- 8.1
18	0	13,218	3,319	32,381	30,345	64,343	4	143,610	149,289	- 3.8
19	269	14,618	2,937	32,879	30,308	80,923	4	161,938	160,029	+ 1.2
20	1,074	13,065	2,749	37,224	29,810	77,939	4	161,865	158,199	+ 2.3
21	1,074	11,235	2,394	35,496	28,702	67,067	6	145,975	144,781	+ 0.8
22	1,074	9,034	2,236	33,756	27,511	53,167	171	126,949	127,093	- 0.1
23	1,074	7,571	1,899	29,565	25,670	42,542	614	108,936	114,781	- 5.1
24	1,074	6,934	1,697	26,237	24,003	32,674	601	93,220	97,712	- 4.6
TOTAL	12,512	267,271	71,672	838,355	664,134	1,109,594	8,204	2,971,743	2,994,464	- 0.8
MIN	0	5,887	1,409	18,675	21,506	23,329	4	74,541	79,177	- 8.1
MAX	1,074	16,383	4,873	50,742	31,960	80,923	2,461	161,938	160,029	+ 7.7
MEAN	521	11,136	2,986	34,931	27,672	46,233	342	123,823	124,769	- 1.2

Table 4.10 h

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

Non-normalized at the Net-to-System Generation Level

March 2002 Constructed Actual System System Percent HOUR F G Н P R U Total Total Error 1,145 6,658 1,478 24,527 21,745 24.069 580 80,202 91,752 - 12.6 2 1,145 6,437 1,321 20,905 21,013 21,176 573 72,570 84,325 - 13.9 1.145 6,473 1,279 3 21,465 20,541 570 72,880 81,306 21,407 - 10.4 6,302 4 1,145 1,300 23,117 20,671 20,923 533 73,990 81,000 - 8.7 5 1,145 6.292 1,404 22,954 21,744 26,304 2,174 82,016 87,194 - 5.9 6 6,609 1,857 1,145 27,979 23,452 34,711 1,948 97,701 97,707 + 0.07 7.392 2,238 34,777 38 25,650 58,512 258 128,866 117,465 + 9.7 8 0 9,818 2,621 41,896 62,319 130,342 26,199 142,858 + 9.6 9 0 13,108 3,532 47,047 28,012 44,197 135,901 135,976 - 0.1 15,850 10 0 4,097 47,771 48,390 145,677 144,072 29,564 +1.111 0 16,381 4,320 53,564 30,000 50,078 154,347 145,311 + 6.2 12 0 17,748 4.089 50,632 152.930 + 6.3 30,222 50,235 143,873 13 0 18,204 4,051 51,649 30,229 45,155 149,292 142,880 + 4.5 14 0 19,329 4,416 51,231 153,506 142,141 + 8.0 30,309 48,217 141,996 15 0 19,383 4,529 54,162 30,304 38,985 147,369 +3.844,758 144,492 141,208 +2.316 0 17,862 4,481 30,237 47,150 143,973 141,087 + 2.0 17 0 15,799 4,166 38,207 30,042 55,755 149,660 140,421 0 12,644 3,566 32,409 28,560 72,476 +6.618 95 12,013 3,007 31,751 144,506 147,169 - 1.8 19 28,836 68,801 144,956 150.542 - 3.7 20 1,145 12,435 2,638 32,978 29,244 66,512 132,603 136,994 - 3.2 21 1.145 11,483 2,358 33,707 28,031 55,874 245 129,750 124,354 +4.310,163 2,115 35,622 27,229 53,231 22 1,145 114,758 - 3.0 654 111,314 23 1,145 8,394 1,861 27,523 25,462 46,275 8,019 1,571 26,041 23,364 39,359 639 100,138 101,416 - 1.3 24 1,145 + 0.9 8,236 2.991.497 2,965,290 **TOTAL** 12,729 284,797 68,295 876,669 640,660 1,100,110 1,279 20,923 72,570 81,000 - 13.9 MIN 0 6.292 20,905 20,541 4 154,347 150,542 + 9.7 4,529 72,476 2,174 MAX 1,145 19,383 54,162 30,309 343 124,646 123,554 - 0.0 2,846 36,528 26,694 45,838 **MEAN** 530 11,867

Table 4.10 i

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK
Non-normalized at the Net-to-System Generation Level

April 2002

							(Constructed	Actual	
								System	System	Percent
<u>HOUR</u>	F	G	H	J	P_	R	U	Total	Total	Error
1	1,095	6,471	1,613	26,810	22,692	32,503	583	91,767	90,422	+ 1.5
2	1,095	6,291	1,576	25,337	22,113	26,413	569	83,394	84,798	- 1.7
3	1,095	6,022	1,519	23,167	22,306	24,043	572	78,725	81,777	- 3.7
4	1,095	6,188	1,553	20,553	22,276	23,709	540	75,914	81,028	- 6.3
5	1,095	6,289	1,661	21,535	23,193	24,565	2,225	80,564	87,044	- 7.4
6	684	6,518	2,031	26,767	25,332	34,829	2,006	98,167	98,132	+ 0.0
7	0	6,953	2,448	30,397	26,264	48,064	264	114,390	118,864	- 3.8
8	0	9,006	3,287	40,469	28,007	56,896	4	137,670	131,340	+ 4.8
9	0	12,575	4,359	50,105	30,060	38,796	4	135,898	141,381	- 3.9
10	0	15,593	5,293	54,129	32,028	38,631	4	145,678	146,722	- 0.7
11	0	16,440	5,194	56,862	32,994	41,284	4	152,778	150,828	+ 1.3
12	0	16,866	5,141	53,150	33,302	43,742	4	152,205	151,065	+ 0.8
13	0	17,043	5,196	57,876	33,562	40,525	4	154,207	151,424	+ 1.8
14	0	17,258	5,295	57,365	33,617	42,379	4	155,919	150,532	+ 3.6
15	0	17,552	5,103	55,468	33,143	41,527	4	152,796	149,747	+ 2.0
16	0	17,022	5,032	49,798	33,259	46,751	4	151,867	149,434	+ 1.6
17	0	14,888	4,617	43,642	32,822	52,805	4	148,779	148,898	- 0.1
18	0	11,939	3,848	35,755	32,017	57,689	4	141,253	145,849	- 3.2
19	0	11,410	3,222	39,938	32,392	62,531	4	149,498	151,833	- 1.5
50	1,031	15,457	2,667	41,642	31,807	78,939	4	171,548	159,369	+ 7.6
21	1,095	12,848	2,756	38,294	30,370	72,872	4	158,238	148,967	+ 6.2
22	1,095	9,780	2.322	36,850	29,583	57,929	545	138,104	137,635	+ 0.3
23	1,095	7,574	1,989	28,501	27,713	41,864	946	109,682	119,985	- 8.6
24	1,095	6,672	1,661	25,920	26,263	29,609	942	92,162	103,528	- 11.0
TOTAL	11,570	274,656	79,384	940,331	697,115	1,058,894	9,254	3,071,204	3,080,601	- 0.3
MIN	0	6,022	1,519	20,553	22,113	23,709	4	75,914	81,028	- 11.0
MAX	1,095	17,552	5,295	57,876	33,617	78,939	2,225	171,548	159,369	+ 7.6
MEAN	482	11,444	3,308	39,180	29,046	44,121	386	127,967	128,358	- 0.9

Table 4.10 j

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

Non-normalized at the Net-to-System Generation Level

May 2002

							•	Constructed	Actual	
								System	System	Percent
HOUR	<u> </u>	G	H	J	Р	R	U	Totaí	Total	Error
1	1,232	6,524	1,672	26,560	21,959	25,581	648	84,177	87,548	- 3.9
2	1,232	6,547	1,713	25,694	21,369	22,969	603	80,128	82,716	- 3.1
3	1,232	6,242	1,640	21,839	21,285	22,929	605	75,773	78,809	- 3.9
4	1,232	6,313	1,603	21,252	21,530	24,291	568	76,790	78,080	- 1.7
5	1,232	6,563	1,604	23,606	22,535	23,490	2,381	81,411	85,247	- 4.5
6	411	7,023	1,999	28,031	24,170	32,763	2,372	96,768	97,156	- 0.4
7	0	6,892	2,463	32,531	25,831	53,908	302	121,927	116,761	+ 4.4
8	0	9,218	2,950	42,985	27,980	53,286	5	136,423	131,013	+ 4.1
9	0	12,055	3,600	53,147	29,807	44,432	5	143,046	139,307	+ 2.7
10	0	14,014	4,351	57,245	31,205	42,675	5	149,494	145,709	+ 2.6
11	0	15,435	4,591	57,385	32,197	41,698	5	<u> 151,31</u> 2	148,917	+ 1.6
12	0	16,470	5,063	52,169	31,859	46,171	5	151,737	149,014	+ 1.8
13	0	15,808	4,879	56,189	31,850	40,565	5	149,296	149,272	+ 0.0
14	0	16,516	4,785	55,932	32,096	43,023	5	152,357	147,810	+ 3.1
15	0	16,707	4,840	52,778	31,927	43,834	5	150,091	146,343	+ 2.6
16	0	16,898	4,912	48,776	31,308	45,941	5	147,840	145,698	+ 1.5
17	0	14,641	4,583	40,749	31,095	45,838	5	136,911	145,221	- 5.7
18	0	11,965	3,706	33,000	30,322	58,617	5	137,615	142,688	- 3.6
19	0	12,711	3,145	32,726	29,643	69,287	5	147,518	145,302	+ 1.5
20	945	13,300	2,867	37,467	30,084	68,799	5	153,467	150,321	+ 2.1
21	1,232	12,173	2,577	36,486	28,395	62,564	5	143,431	140,745	+ 1.9
22	1,232	10,816	2,303	40,203	27,948	60,627	400	143,530	132,029	+ 8.7
23	1,232	8,594	1,988	32,714	25,858	51,084	638	122,109	118,315	+ 3.2
24	1,232	7,356	1,872	28,625	23,937	41,436	583	105,041	102,416	+ 2.6
TOTAL	12,447	270,779	75,707	938,091	666,192	1,065,808	9,168	3,038,192	3,006,439	+ 1.1
MIN	0	6,242	1,603	21,252	21,285	22,929	5	75,773	78,080	- 5.7
MAX	1,232	16,898	5,063	57,385	32,197	69,287	2,381	153,467	150,321	+ 8.7
MEAN	519	11,282	3,154	39,087	27,758	44,409	382	126,591	125,268	+ 0.7

Table 4.10 k

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK Non-normalized at the Net-to-System Generation Level

June 2002

								Constructed	Actual	
110								System	System	Percent
HOUR	F	G.	Н	J	Р	R	U	Total	Total	Error
1	1,316	7,025	1,676	25,440	23,704	27,544	766	87,471	96,476	- 9.3
5	1,316	6,705	1,675	23,658	23,035	24,671	773	81,832	90,561	- 9.6
3	1,316	6,536	1,590	22,466	23,070	24,332	747	80,057	88,465	- 9.5
4	1,316	6,512	1,618	22,587	22,923	28,940	578	84,474	86,991	- 2.9
5	1,316	6,521	1,708	22,671	24,044	24,901	1,911	83,073	91,966	- 9.7
6	373	6,864	2,185	26,819	25,591	32,979	1,664	96,474	101,207	- 4.7
7	0	8,115	2,832	32,505	27,032	50,346	314	121,145	112,363	+ 7.8
8	0	11,339	3,547	36,587	28,554	49,737	4	129,767	130,613	- 0.6
9	0	16,616	4,507	44,557	30,639	39,874	4	136,198	143,574	- 5.1
10	0	18,293	5,084	44,134	32,151	43,734	4	143,400	150,304	- 4.6
11	0	18,718	4,993	44,956	32,167	49,484	4	150,322	152,319	- 1.3
12	0	18,575	5,165	45,635	32,259	43,724	4	145,362	152,937	- 5.0
13	 0	17,932	5,520	48,760	32,546	48,708	4	153,471	153,038	+ 0.3
14	0	18,209	5,676	45,310	32,507	45,285	4	146,991	152,574	- 3.7
15	0	18,759	5,451	46,141	32,377	54,640	4	157,370	151,755	+ 3.7
16	0	17,944	5,154	41,568	31,917	61,255	4	157,842	150,937	+ 4.6
17	0	15,952	4,581	36,485	31,579	58,004	4	146,605	150,659	- 2.7
18	0	15,269	3,900	30,143	30,578	70,698	4	150,593	146,495	+ 2.8
19	0	13,808	3,385	35,002	30,456	77,242	4	159,898	149,338	+ 7.1
20	768	15,472	3,074	39,030	31,269	77,946	4	167,562	155,477	+ 7.8
21	1,316	13,293	2,720	37,024	29,975	67,988	4	152,319	145,429	+ 4.7
22	1,316	11,588	2,464	36,882	29,141	64,389	568	146,347	135,381	+ 8.1
23	1,316	8,795	2,140	28,437	27,478	50,802	565	119,533	121,156	- 1.3
24	1,316	7,655	1,895	26,060	25,552	38,736	526	101,740	106,932	- 4.9
TOTAL	12,985	306,496	82,539	842,856	690,541	1,155,959	8,466	3,099,843	3,116,947	- 0.5
MIN	0	6,512	1,590	22,466	22,923	24,332	4	80,057	86,991	- 9.7
MAX	1,316	18,759	5,676	48,760	32,546	77,946	1,911	167,562	155,477	+ 8.1
MEAN	541	12,771	3,439	35,119	28,773	48,165	353	129,160	129,873	- 1.2

Table 4.10 I

TOTAL SYSTEM HOURLY LOAD PROFILE ON THE DAY OF THE DAY PEAK

Non-normalized at the Net-to-System Generation Level

July 2002

								Constructed	Actual	
								System	System	Percent
HOUR	F	G	H	<u>J</u>	P	<u>R</u>	U	Total	Total	Error
1	1,165	7,342	1,738	30,216	25,844	34,772	843	101,920	101,134	+ 0.8
2	1,165	6,919	1,631	28,070	25,628	28,869	825	93,108	95,301	- 2.3
3	1,165	6,640	1,573	24,683	25,461	26,666	823	87,013	91,461	- 4.9
4	1,165	6,727	1,698	27,767	24,870	28,749	817	91,793	90,166	+ 1.8
5	1,165	6,709	1,867	26,436	26,232	26,428	2,299	91,136	95,221	- 4.3
6	495	6,953	2,128	28,936	27,513	34,832	2,456	103,315	105,356	- 1.9
7	0	7,252	2,549	34,637	29,554	54,254	603	128,849	115,292	+ 11.8
8	0	10,628	3,274	41,762	30,879	46,526	18	133,086	135,288	- 1.6
9	0	15,545	4,443	49,790	33,178	43,379	6	146,340	149,922	- 2.4
<u> 10</u>	0	18,267	4,972	55,022	35,057	39,677	4	153,000	158,742	<u>- 3.6</u>
11	0	19,246	4,972	56,729	34,955	44,354	4	160,260	160,513	- 0.2
12	0	18,240	5,132	55,520	35,087	45,533	4	159,516	159,417	+ 0.1
13	0	18,162	5,052	58,340	35,434	44,115	4	161,108	160,777	+ 0.2
14	0	18,230	5,029	59,792	35,193	39,556	4	157,804	160,372	- 1.6
15	0	18,109	5,022	53,422	34,822	41,806	4	153,185	157,971	- 3.0
16	0	18,023	5,048	55,049	35,059	51,672	4	164,855	159,634	+ 3.3
17	0	16,745	4,670	48,131	34,868	50,133	4	154,551	159,489	- 3.1
18	0	14,524	4,243	39,603	32,702	58,170	4	149,247	154,912	- 3.7
19	0	13,168	3,336	40,311	33,152	79,030	4	169,002	157,620	+ 7.2
20	651	15,681	2,958	44,747	32,915	82,477	4	179,432	162,631	+ 10.3
21	1,165	13,379	2,642	41,439	31,800	71,813	4	162,243	151,810	+ 6.9
22	1,165	10,624	2,398	45,848	31,307	59,247	462	151,052	139,038	+ 8.6
23	1,165	8,342	2,002	36,714	29,290	53,719	842	132,075	128,565	+ 2.7
24	1,165	8,108	1,823	30,465	27,132	41,559	839	111,090	110,686	+ 0.4
TOTAL	11,633	303,564	80,199	1,013,429	747,932	1,127,336	10,883	3,294,976	3,261,317	+ 1.0
MIN	0	6,640	1,573	24,683	24,870	26,428	4	87,013	90,166	- 4.9
MAX	1,165	19,246	5,132	59,792	35,434	82,477	2,456	179,432	162,631	+ 11.8
MEAN	485	12,649	3,342	42,226	31,164	46,972	453	137,291	135,888	+ 0.9

Exhibit 4.8 a

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

August 2001

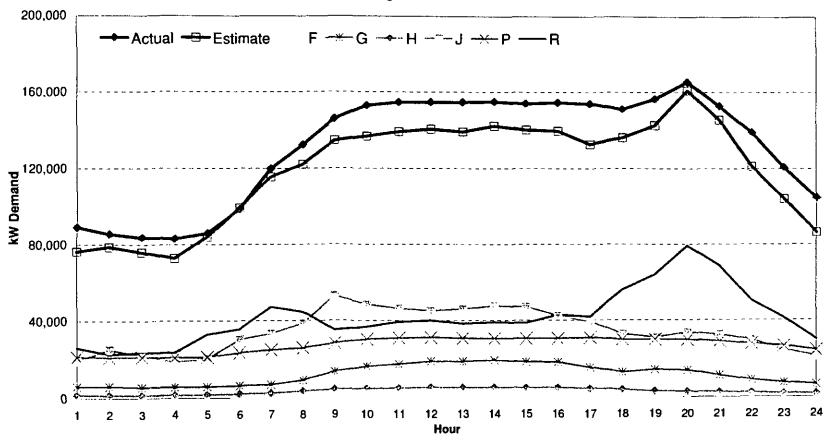


Exhibit 4.8 b

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK

Actual vs Sample Estimate

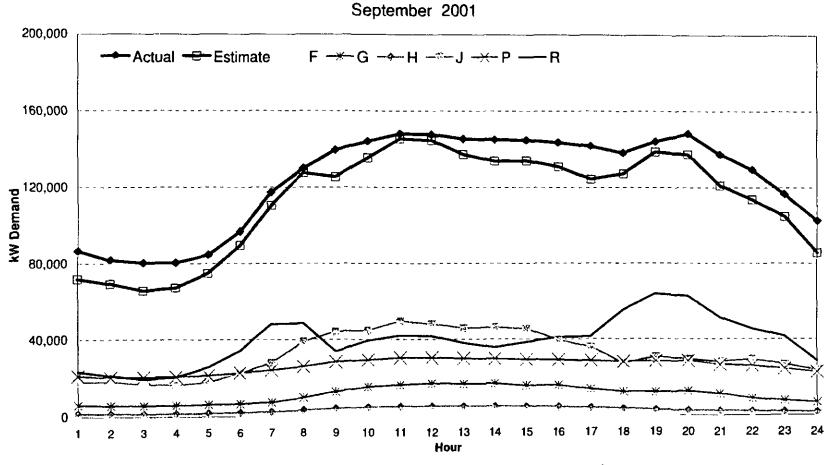


Exhibit 4.8 c

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

October 2001

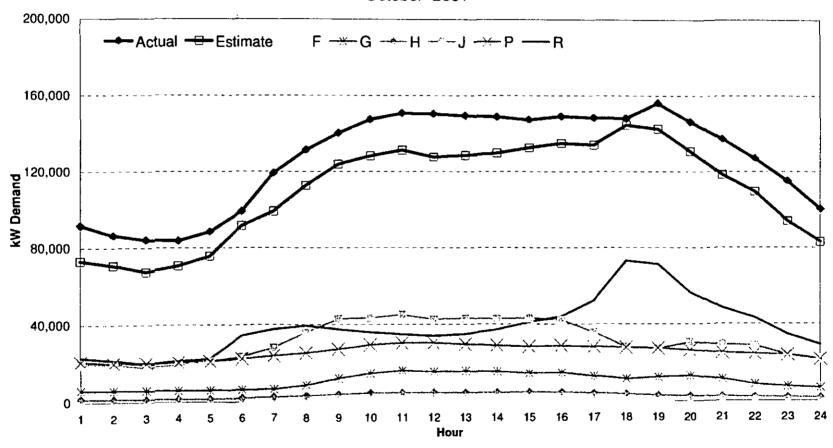


Exhibit 4.8 d

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK

Actual vs Sample Estimate

November 2001

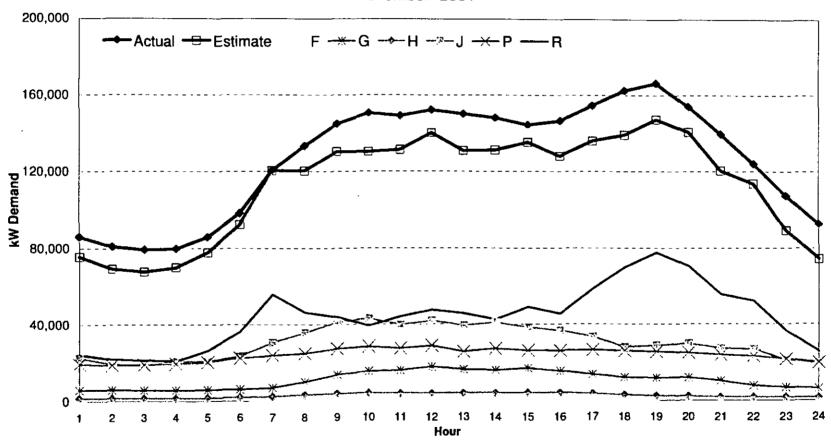


Exhibit 4.8 e

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

December 2001

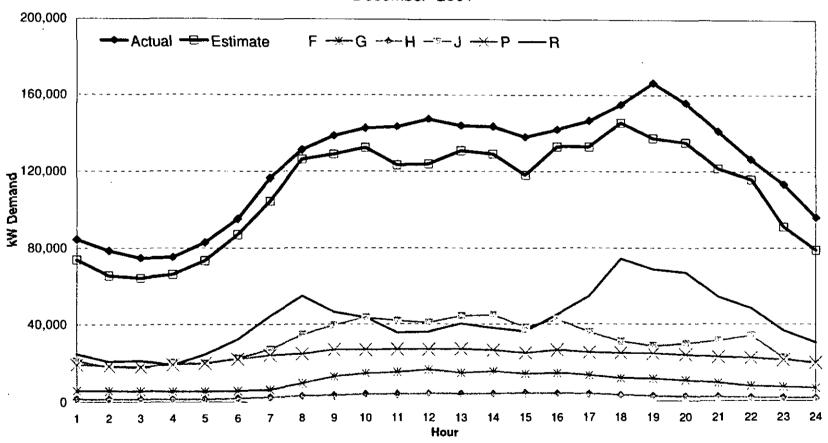


Exhibit 4.8 f

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

January 2002

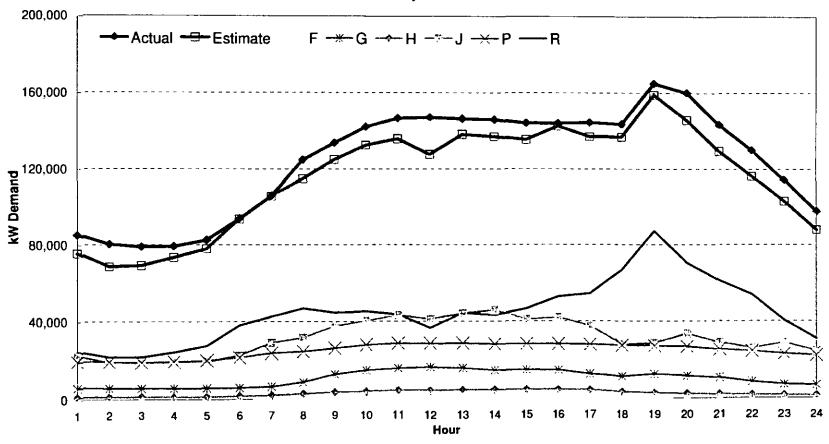


Exhibit 4.8 g

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

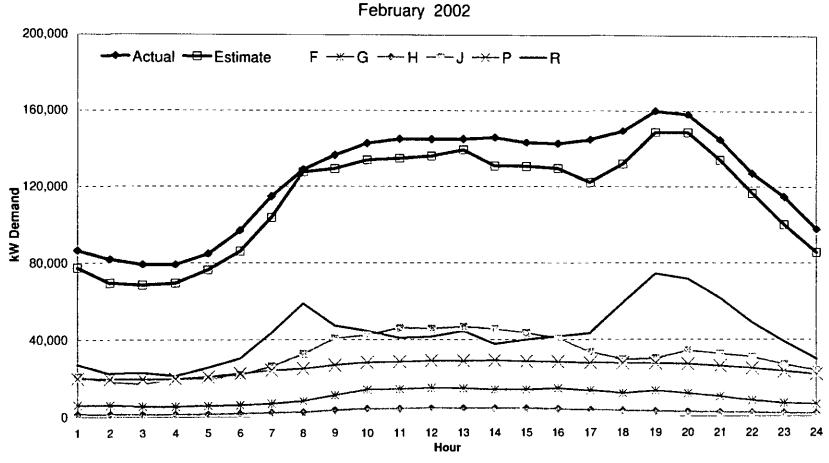


Exhibit 4.8 h

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

March 2002

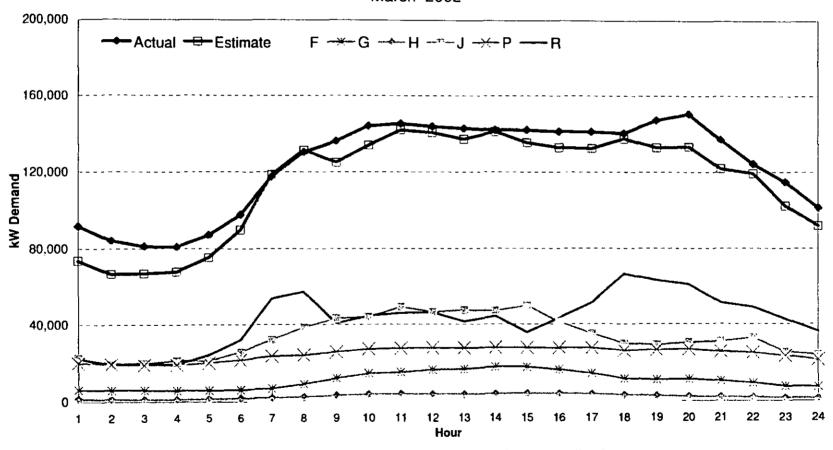


Exhibit 4.8 i

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

April 2002

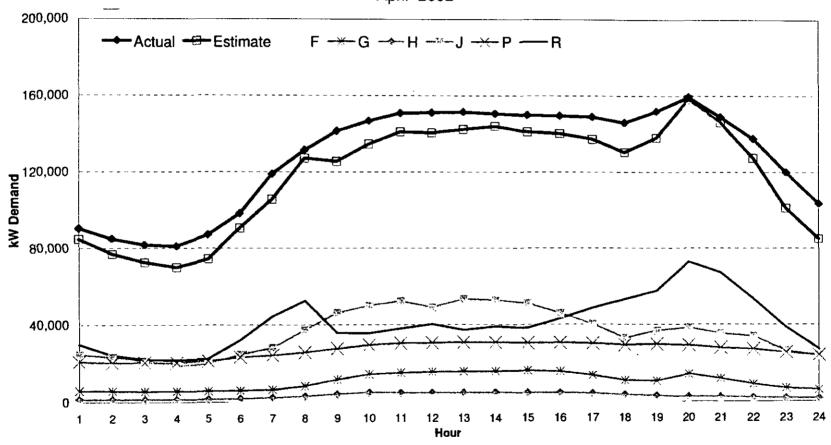


Exhibit 4.8 j

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

May 2002

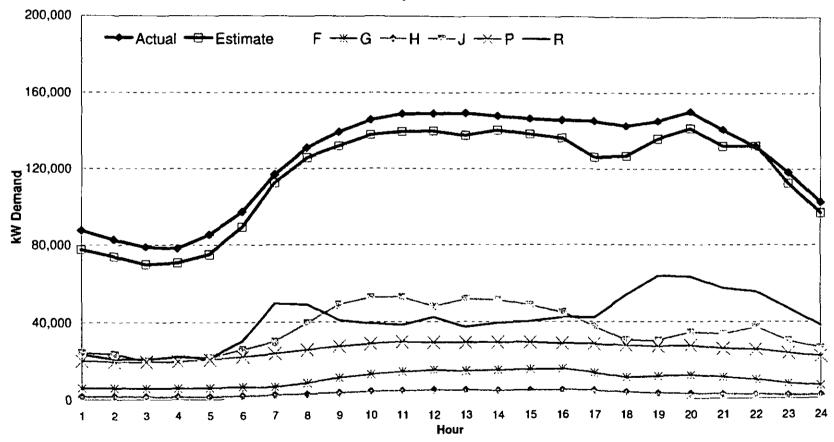


Exhibit 4.8 k

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

June 2002

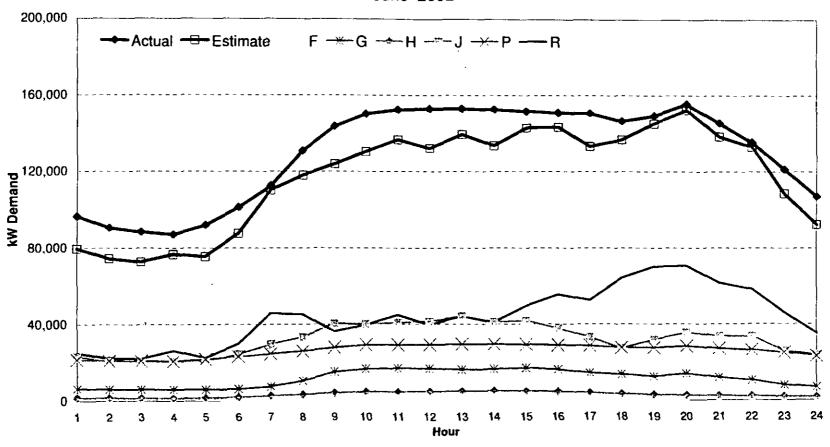


Exhibit 4.8 I

TOTAL SYSTEM HOURLY LOAD FOR THE DAY OF THE DAY PEAK
Actual Net-to-System vs Sample Estimate

July 2002

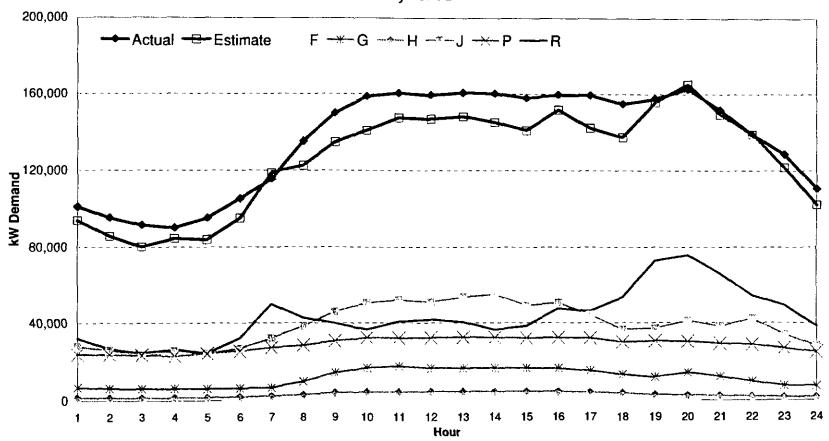


Table 4.11
DAYS AND HOURS OF THE TWELVE-MONTH CLASS PEAK DEMANDS

Rate	Peak Day	Day of the Week	Time-of-Use Period	During the Hour Ending at
F	June 1, 2002	Every Night	On-peak	
G	July 2, 2002	Tuesday	On-peak	Noon
H/K	July 30, 2002	Tuesday	On-peak	2:00 PM
J	August 24, 2001	Friday	On-peak	9:00 AM
P	July 1, 2002	Monday	On-peak	1:00 PM
R	November 21, 2001	Wednesday	Priority peak	7:00 PM
U	October 1, 2001	Monday	Off-peak	6:00 AM
Total System	December 17, 2001	Monday	Priority peak	7:00 PM

	Time-of-Use Period [Definition:	
Priority Peak:	5 pm - 9 pm	Monday through Friday	
On-peak:	7 am - 5 pm	Monday through Friday	
·	7 am - 9 pm	Saturday and Sunday	
Off-peak:	9 pm - 7 am	Daily	

Notes:

The rate classes' peak days are derived from the study data.

Schedule F is constructed such that each day is an average day; July was its peak month.

The total system data is the actual recorded instantaneous system peak in 2001.

Table 4.12

AVERAGE WEEKDAY PROFILES FOR THE TOTAL SYSTEM NORMALIZED AT THE NET-TO-SYSTEM LEVEL

60-Minute Integrated kW Demand

Hour	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	<u>Apr-02</u>	May-02	<u>Jun-02</u>	Jul-02
1	90,852	88,631	87,266	86,540	86,128	83,724	82,729	86,029	87,407	86,676	91,936	96,000
2	85,587	84,415	82,921	81,558	80,316	78,272	77,769	80,520	82,666	81,297	86,293	90,239
3	83,099	82,598	81,162	79,740	77,908	75,966	75,604	78,120	80,007	79,002	83,716	87,244
4	82,707	82,307	81,025	79,547	78,228	75,648	75,542	77,797	79,707	78,514	83,552	87,048
5	86,449	87,132	85,779	84,778	83,480	81,547	81,784	83,802	85,331	84,178	88,080	91,811
6	97,127	98,562	97,039	96,184	93,787	92,787	93,855	95,052	97,240	97,159	97,404	102,387
7	115,364	117,280	115,221	115,250	110,528	110,717	113,238	114,141	117,890	116,371	111,274	115,291
8	128,769	128,323	127,590	127,841	124,853	125,666	126,614	125,469	128,909	128,498	126,869	131,999
9	140,024	137,463	136,606	136,673	134,220	132,653	132,014	132,436	137,071	137,758	138,686	144,212
10	147,160	143,087	142,591	142,600	141,003	139,049	136,803	137,639	142,266	142,847	145,160	151,441
11	149,879	146,295	145,871	145,341	143,595	141,726	138,741	139,581	144,972	145,347	148,165	153,972
12	149,748	146,102	145,849	146,048	143,600	141,625	137,955	139,538	145,031	145,557	148,252	154,490
13	149,105	145,825	145,661	145,767	142,781	141,067	137,082	139,192	144,906	145,645	148,111	154,421
14	149,231	145,572	145,462	145,394	141,851	140,264	136,469	138,763	144,449	144,917	147,207	153,464
15	148,590	144,387	144,574	144,402	140,153	139,209	135,005	137,839	143,168	143,925	146,792	152,698
16	148,595	144,284	144,820	145,214	140,673	140,097	135,935	138,409	142,757	144,100	146,735	152,558
17	147,887	143,540	145,387	146,684	143,462	141,947	138,095	139,554	142,867	144,391	146,732	152,471
18	145,478	141,566	147,418	151,377	149,086	145,001	141,422	141,382	143,191	143,713	144,986	149,610
19	149,681	150,128	158,453	162,331	162,212	158,286	153,414	149,786	150,004	148,177	147,094	151,438
20	155,937	151,561	152,105	153,261	154,332	153,936	154,562	153,527	154,787	153,325	151,970	156,587
21	146,794	140,111	140,267	140,749	140,029	139,572	141,365	141,242	144,201	143,116	141,955	146,356
22	135,206	127,940	127,245	128,341	127,752	126,230	126,344	127,428	132,023	130,215	132,304	136,894
23	119,206	113,078	112,110	113,259	114,699	111,413	110,929	112,063	114,566	115,020	116,088	124,666
24	102,973	99,172	97,315	97,751	98,469	94,492	93,675	97,240	98,767	99,320	102,765	107,716
MIN	82,707	82,307	81,025	79,547	77,908	75,648	75,542	77,797	79,707	78,514	83,552	87,048
MAX	155,937	151,561	158,453	162,331	162,212	158,286	154,562	153,527	154,787	153,325	151,970	156,587
MEAN	127,310	124,557	124,572	124,860	123,048	121,287	119,873	121,106	124,341	124,128	125,922	131,042
Avg/Day	3,055,448	2,989,361	2,989,737	2,996,631	2,953,143	2,910,897	2,876,943	2,906,550	2,984,182	2,979,067	3,022,128	3,145,013

Table 4.13

AVERAGE WEEKEND PROFILES FOR THE TOTAL SYSTEM NORMALIZED AT THE NET-TO-SYSTEM LEVEL

60-Minute Integrated kW Demand

<u>Hour</u>	<u>Aug-01</u>	<u>Sep-01</u>	<u>Oct-01</u>	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	<u>Apr-02</u>	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	93,389	91,870	89,525	88,565	88,813	86,558	85,229	87,295	90,885	88,879	92,096	96,852
2	87,528	86,836	84,807	82,673	82,319	80,607	79,719	81,430	84,930	83,281	86,048	90,852
3	84,294	83,722	81,813	80,119	78,918	77,262	76,698	78,311	81,770	80,202	83,027	86,909
4	83,344	82,688	80,807	79,373	78,066	75,774	75,907	76,992	80,146	79,253	82,040	85,762
5	85,509	84,777	83,358	81,904	80,716	78,486	79,266	80,373	83,023	82,620	84,530	89,060
6	91,172	89,678	89,727	88,112	86,621	84,350	85,767	87,215	88,828	88,815	89,377	94,694
7	100,067	98,076	99,625	97,346	95,515	92,624	94,291	97,267	98,380	97,752	97,848	101,698
8	112,916	110,698	111,758	110,249	108,356	105,480	108,538	109,985	112,062	111,767	110,222	115,786
9	126,217	122,159	123,423	123,213	122,203	119,103	121,061	122,030	124,207	124,068	124,356	128,809
10	134,087	129,349	129,714	130,481	130,145	128,548	128,871	128,349	129,825	130,362	131,592	136,558
11	136,856	132,435	131,791	132,284	131,360	130,834	129,990	129,890	130,537	132,507	133,696	138,852
12	136,351	132,411	131,632	131,975	130,202	130,103	129,332	129,288	130,056	132,170	133,717	138,725
13	134,722	131,522	130,908	130,852	129,148	128,302	127,561	128,310	129,171	130,816	133,100	137,935
14	133,766	130,253	129,830	129,838	127,537	126,378	125,734	127,205	128,743	128,976	131,513	136,664
15	133,145	129,676	128,694	128,430	126,257	125,208	124,182	125,912	128,687	128,290	131,343	135,775
16	134,702	130,977	130,196	129,883	128,154	127,153	126,069	127,256	130,412	129,731	132,401	136,696
17	138,176	134,661	134,472	133,508	133,405	132,590	130,503	131,163	134,682	134,272	135,790	139,469
18	141,678	138,397	141,734	142,283	142,190	139,915	136,889	135,379	139,078	138,285	138,627	142,394
19	145,206	145,725	152,579	152,926	157,156	152,712	147,420	143,547	145,091	141,930	140,305	144,329
20	150,949	145,984	144,762	144,330	150,593	148,089	148,750	148,385	149,543	145,637	145,614	149,844
21	143,007	135,751	133,833	134,092	139,568	135,714	136,783	138,212	139,297	137,373	140,372	143,517
22	131,226	124,630	121,781	122,584	127,176	123,842	123,759	125,864	126,362	124,201	128,951	133,206
23	116,645	111,267	107,944	108,504	112,489	108,799	108,196	110,397	111,679	110,578	113,510	121,284
24	101,130	97,631	95,310	95,120	96,939	93,623	92,809	95,785	96,875	96,024	99,244	105,576
MIN	83,344	82,688	80,807	79,373	78,066	75,774	75,907	76,992	80,146	79,253	82,040	85,762
MAX	150,949	145,984	152,579	152,926	157,156	152,712	148,750	148,385	149,543	145,637	145,614	149,844
MEAN	119,837	116,715	116,251	115,777	115,994	113,836	113,472	114,410	116,428	115,741	117,472	122,135
Avg/Day	2,876,080	2,801,172	2,790,024	2,778,645	2,783,849	2,732,053	2,723,326	2,745,839	2,794,271	2,777,788	2,819,319	2,931,245

Exhibit 4.9 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

August 2001

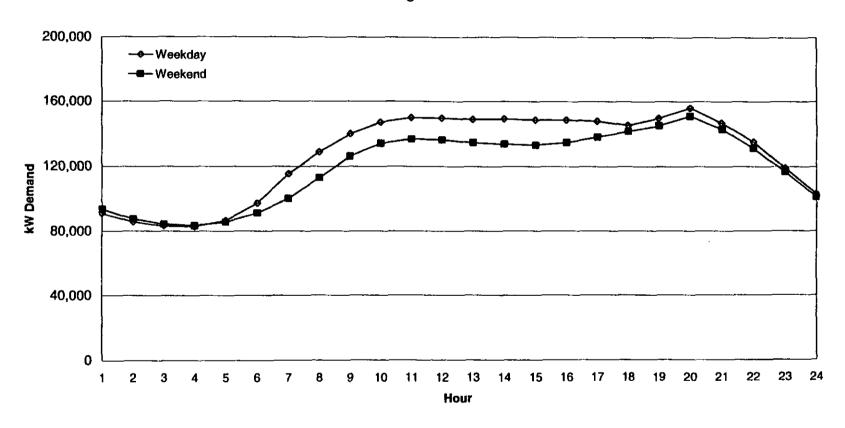


Exhibit 4.9 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

September 2001

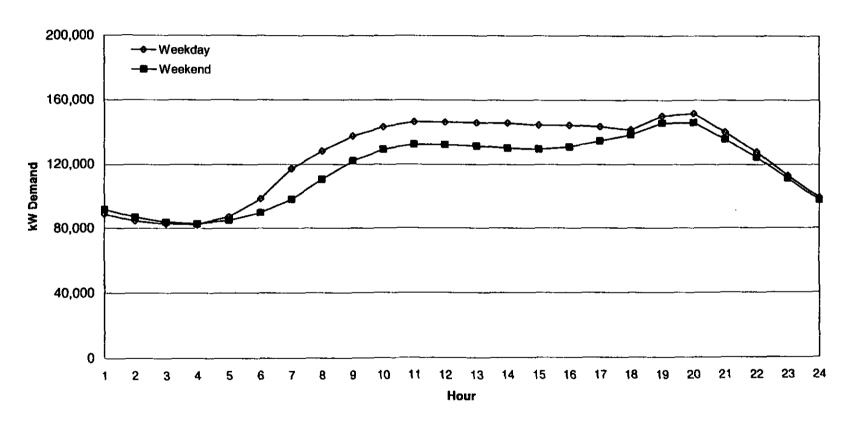


Exhibit 4.9 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

October 2001

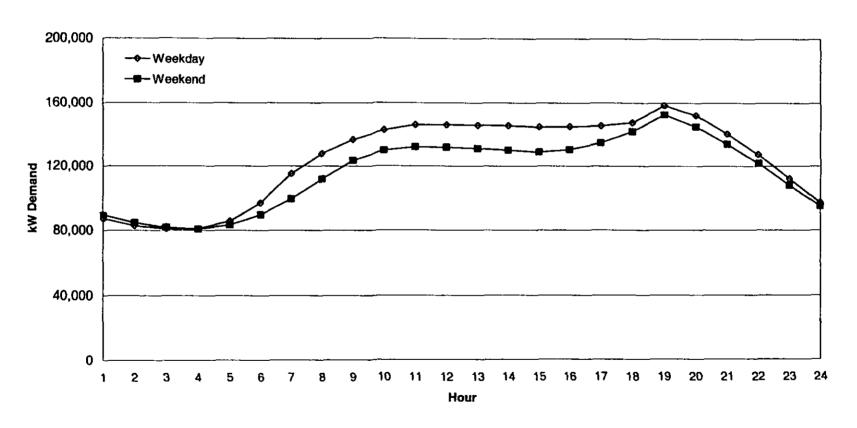


Exhibit 4.9 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

November 2001

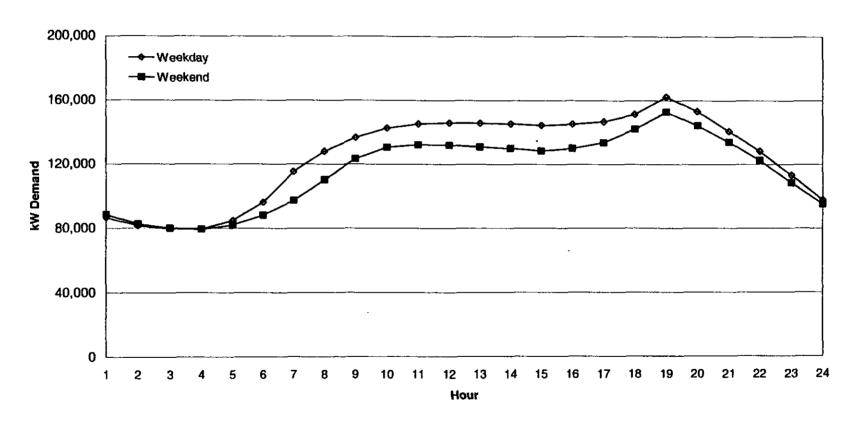


Exhibit 4.9 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

December 2001

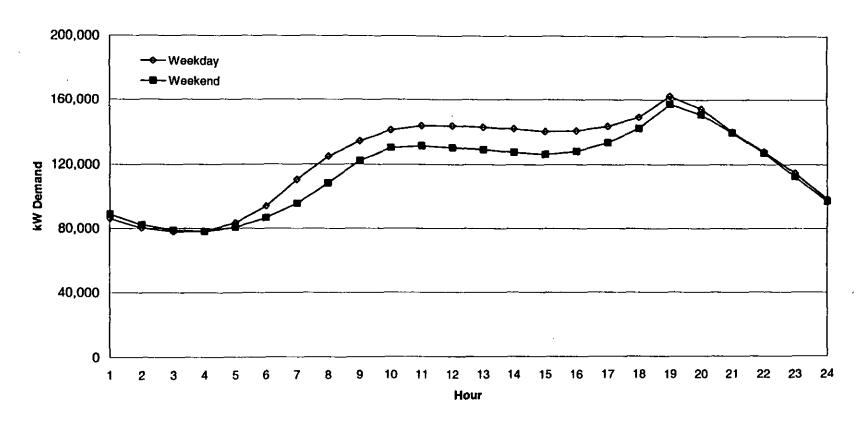


Exhibit 4.9 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

January 2002

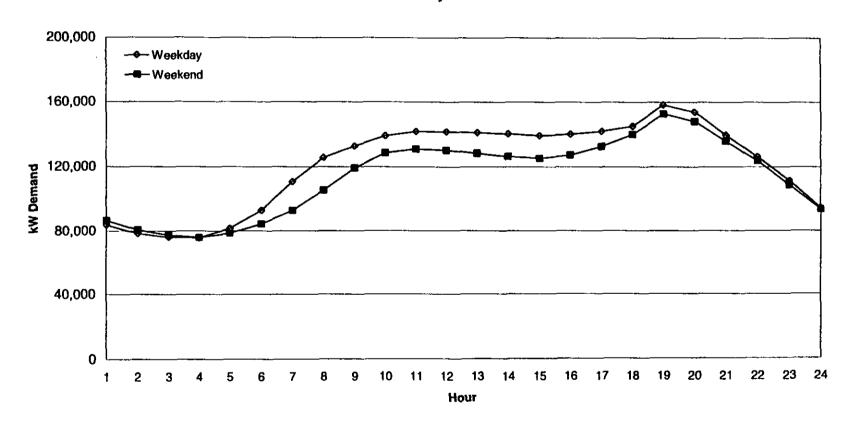


Exhibit 4.9 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

February 2002

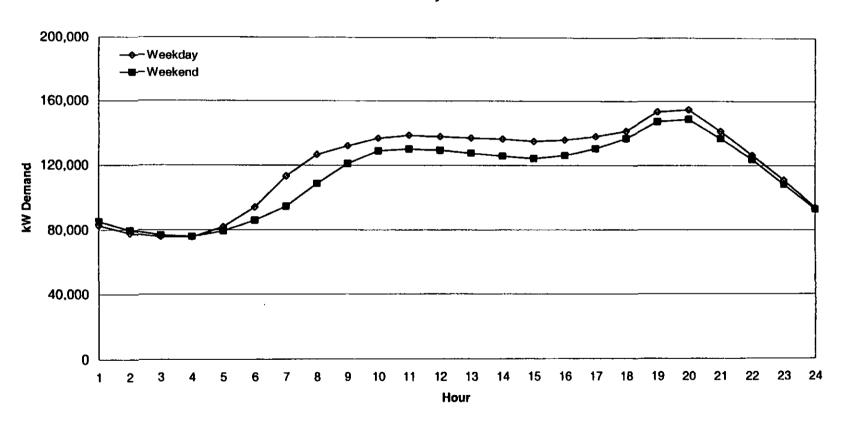


Exhibit 4.9 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

March 2002

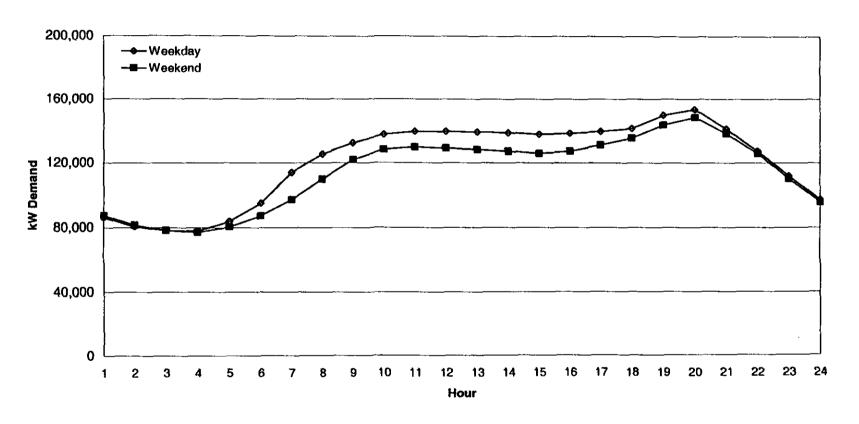


Exhibit 4.9 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

April 2002

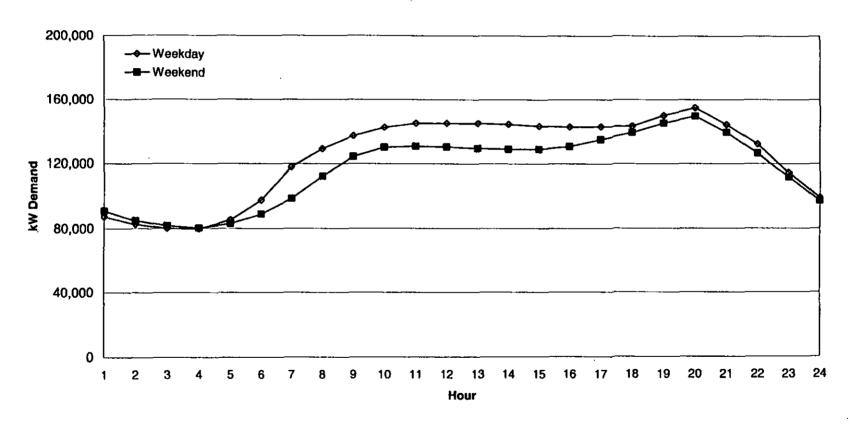


Exhibit 4.9 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

May 2002

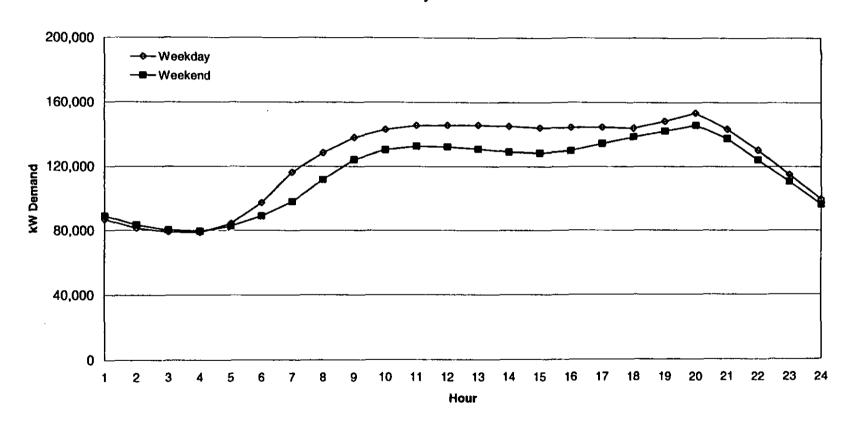


Exhibit 4.9 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

June 2002

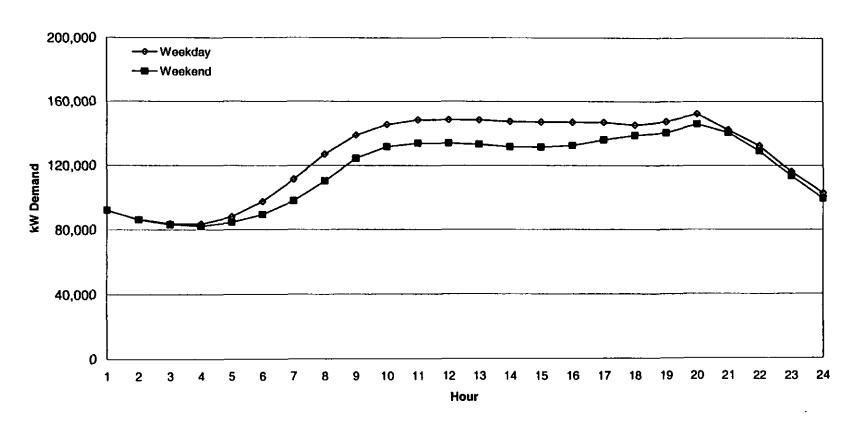


Exhibit 4.9 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, NORMALIZED AT THE NET-TO-SYSTEM LEVEL

July 2002

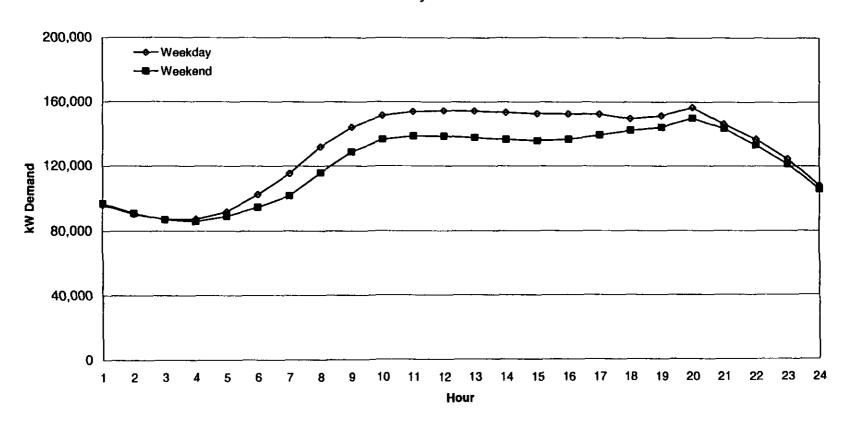


Table 4.14
SUMMARY OF THE TWELVE-MONTH LOAD FACTORS BY RATE CLASS

Rate Class	Load Factor	Total kWh 1	Class Peak kW ²
F: Street Light Service	37%	4,616,398	1,412
G: General Service Non-demand	52%	94,652,792	20,953
H/K: Commercial Cooking and Heating Service	50%	25,879,600	5,884
J: General Service Demand	54%	291,683,556	61,450
P: Large Power Service	77%	241,214,675	35,872
R: Residential Service	46%	405,455,485	100,096
U: Time-of-Use Service	13%	3,847,418	3,359
Total System: August 2001 through July 2002	70%	1,067,349,924 ³	174,100 4

Load factor (%) = $100 \times (\text{Total kWh}) / (\text{Peak Demand} \times 8,760 [\text{the number of hours in the year}])$

¹ The sample estimates of total kWh are at the net-to-system hourly generation level.

² The sample estimates of integrated 60-minute kW demand are also at the net-to-system generation level.

³ Recorded generation is at the net-to-system generation level for August 2001 - July 2002.

⁴ Recorded instantaneous demand is at the net-to-system generation level.

Table 4.15
TOTAL SYSTEM TWELVE-MONTH KWH BY TIME-OF-USE AT THE SALES LEVEL¹

	Priority Pe	ak	On-Peak	•	Off-Peak			% of Total
Rate	kWh	%	kWh	%	kWh	%	Total_kWh	System
F	541,753	0.4%	261,051	0.0%	3,313,919	1.1%	4,116,723	0.4%
G	11,655,348	8.5%	51,747,175	9.8%	23,362,761	7.4%	86,765,284	8.9%
H/K	2,826,875	2.1%	14,856,539	2.8%	6,062,836	1.9%	23,746,250	2.4%
J	30,861,575	22.5%	152,732,806	29.0%	83,634,013	26.6%	267,228,394	27.3%
P	26,785,295	19.5%	113,713,784	21.6%	79,758,861	25.4%	220,257,940	22.5%
R	64,409,540	47.0%	192,666,688	36.6%	114,591,280	36.5%	371,667,508	38.0%
U	23,694	0.0%	277,762	0.1%	3,141,115	1.0%	3,442,572	0.4%
Total	137,104,080	100.0%	526,255,806	100.0%	313,864,786	100.0%	977,224,671	100.0%

Time-of-Use Perio	Time-of-Use Period Definition:								
Priority Peak: 5 pm - 9 pm Monday through Friday									
On-peak: 7 am - 5 pm	Monday through Friday								
7 am - 9 pm	Saturday and Sunday								
·	Off-peak: 9 pm - 7 am Daily								

Normalized sample estimates.

Table 4.16

TOTAL SYSTEM TWELVE-MONTH MONTHLY KWH BY TIME-OF-USE AT THE SALES LEVEL

	kWh	Load by Time-of	-Use	
Month	Priority Peak	On-peak	Off-peak	Total
Aug-01	12,357,327	45,039,346	27,797,078	85,193,751
Sep-01	10,436,617	44,305,108	25,864,466	80,606,191
Oct-01	12,091,610	43,992,551	26,114,563	82,198,725
Nov-01	11,144,638	43,120,345	25,168,347	79,433,331
Dec-01	11,154,356	44,051,362	25,950,356	81,156,074
Jan-02	11,651,587	44,035,456	25,833,091	81,520,134
Feb-02	10,472,405	39,028,941	23,309,850	72,811,196
Mar-02	10,529,346	44,772,264	25,811,872	81,113,482
Apr-02	12,270,450	42,820,377	26,163,697	81,254,524
May-02	12,070,939	44,773,336	26,663,536	83,507,811
Jun-02	10,357,141	43,896,133	26,130,472	80,383,747
Jul-02	12,567,663	46,420,585	29,057,457	88,045,705
Total	137,104,080	526,255,806	313,864,786	977,224,671
Percent	14%	54%	32%	100%

Note: Normalized sales from sample estimates

rei cent k	Percent Kivii Load by Time-01-038					
Priority Peak	On-peak	Off-peak	Total			
15%	53%	33%	100%			
13%	55%	32%	100%			
15%	54%	32%	100%			
14%	54%	32%	100%			
14%	54%	32%	100%			
14%	54%	32%	100%			
14%	54%	32%	100%			
13%	55%	32%	100%			
15%	53%	32%	100%			
14%	54%	32%	100%			
13%	55%	33%	100%			
14%	53%	33%	100%			

Time-of-Use Definitions:

Percent kWh Load by Time-of-like

Priority Peak: 5 pm - 9 pm, Monday through Friday

On-Peak: 7 am - 5 pm, Monday through Friday

7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

5. SCHEDULE R: RESIDENTIAL SERVICE

The residential class is the largest in the system. From August 2001 through July 20002 it contained an average of 54,683 customers, or 84% of all customers. Schedule R, which for the purposes of this study includes Rate E Employee Service, accounted for 38% of total sales during the study period, with an average consumption of 30,972 MWh per month, or 566 kWh per customer.

The residential load data revealed these patterns and characteristics:

- 1. During the study period Schedule R's average monthly consumption ranged from a low of 529 kWh in February to a high of 608 kWh in January. The weighted average monthly consumption for the 141 customers in the sample was 566 kWh, which was the average for the population.
- 2. Table 5.1 summarizes the monthly residential load statistics per customer normalized to the sales level. Table 5.1 also shows the non-coincident and coincident demands of the residential sample.

The non-coincident demand is a customer's highest demand during a calendar month. The class non-coincident demand is the total non-coincident demand of all the customers in the class.

The coincident demand of a customer is the demand which a customer puts on the system at a specified time, either the system peak, day peak or class peak. The class coincident demand is the total demand of all customers in the class at the specified time.

The diversity factor represents the extent to which the peak demand of each individual customer in the class occurs simultaneously. It is the ratio of the maximum non-coincident demand per customer to the coincident demand per customer at the class peak, expressed as a percent.

The residential sample's average diversity factor was 281%. The average non-coincident demand per customer was 4.4 kW; the average coincident demand per customer at the class peak was 1.6 kW. The maximum coincident demand was highest in November; the maximum non-coincident demand was highest in January.

- 3. The sample's monthly load factor ranged from 45% to 56% during the study period, with an average monthly load factor of 50%.
- 4. Schedule R's monthly peaks occurred between 6 PM and 7 PM, except in August, when it occurred between 7 PM and 8 PM. The residential hourly loads on the day of the class peak in each month are reported in Tables 5.2 (total class) and 5.3 (average per customer).

5. Table 5.4 summarizes the class contribution to the system and day peaks normalized to the net-to-system generation. To extrapolate the demand from the sales level to the net-to-system generation, the sample-based estimates for each class of sales at the peak hour were added, and the sum was normalized to the actual system or day peak for each month.

Schedule R's contribution to the monthly system peaks, 50%, was much higher than its contribution to the day peak, 29%.

Its contribution to the monthly system peaks ranged in amount from 68 MW in June to 99 MW in December and in percentage from 42% in June to 57% in December.

The contribution to the day peak ranged in amount from 41 MW in October to 48 MW in March and in percentage from 28% in May, July and August to 34% in November.

- 6. As shown in Table 5.5, 52% of the total residential kWh consumption occurred during the system on-peak period (7 AM to 9 PM daily), with 17% occurring during the system priority peak period (5 PM to 9 PM, Monday through Friday).
- 7. Hourly load data at the system gross and the sales levels for the average weekday and weekend of each month are presented in Tables 5.6 through 5.9. The net-to-system weekend and weekday loads are graphed in Exhibits 5.1a through 5.11. Schedule R's load profiles show a morning peak at 7 or 8 AM on weekdays and from 9AM to 11 AM on weekends. The evening peaks were between 7 PM and 8 PM, except in March, April and August, when they occurred after 8 PM. From 9 AM until 6 PM Schedule R's weekend loads averaged 16% higher than its weekday loads, but the weekend evening peaks were only 1% lower then the weekday evening peaks.

Table 5.1

SUMMARY OF MONTHLY LOAD STATISTICS AT THE SALES LEVEL

Schedule R: Residential Service

			%_	kWh		kW D	emand at Ti	me of	Maximum		Load Factor Based on	Load Factor Based on		idence F t Time of	
Month '	Sample Size	kWh	On Peak	Off Peak	Class Peak Date - Hour	CLASS PEAK		TEM AM PEAK	Non-coincident Demand	Diversity Factor	Coincident Demand	Non-coincident Demand	Class Peak	System Peak	Day Peak
A	В	_с	D	E	F	G	Н	I	J,	K = (J/G)	L	М	N=(G/J)	O=(H/J)	P=(I/J
Aug-01	141	575	68%	32%	08/27-20:00	1.5	1.5	0.7	4.0	275%	53%	19%	36%	36%	18%
Sep-01	141	539	69%	31%	09/24-19:00	1.6	1.3	8.0	3.9	244%	47%	19%	41%	32%	20%
Oct-01	141	555	69%	31%	10/08-19:00	1.6	1.3	0.6	4.1	266%	48%	18%	38%	31%	15%
Nov-01	141	558	70%	30%	11/21-19:00	1.7	1.4	0.9	4.3	245%	45%	18%	41%	33%	21%
Dec-01	141	595	70%	30%	12/28-19:00	1.6	1.6	0.7	4.7	284%	49%	17%	35%	35%	14%
Jan-02	141	608	70%	30%	01/02-19:00	1.7	1.6	0.7	4.9	294%	49%	17%	34%	33%	14%
Feb-02	141	529	70%	30%	02/12-19:00	1.7	1.4	0.8	4.7	278%	47%	17%	36%	30%	16%
Mar-02	141	581	70%	30%	03/27-19:00	1.5	1.4	0.8	4.7	307%	51%	17%	33%	29%	18%
Apr-02	141	556	68%	32%	04/28-19:00	1.5	1.3	0.7	4.6	295%	50%	17%	34%	29%	16%
May-02	141	563	69%	31%	05/13-19:00	1.5	1.5	0.7	3.8	257%	51%	20%	39%	39%	18%
Jun-02	141	549	69%	31%	06/25-19:00	1,4	1.0	0.7	4.4	321%	56%	17%	31%	24%	16%
Jul-02		588	68%	32%	07/02-19:00	1.5	1.3	0.7	4.6	306%	53%	17%	33%	28%	16%
Average	141	566	69%	31%		1.6	1.4	0.7	4.4	281%	50%	18%	36%	32%	17%

Notes:

- 1) kW Demand is 60-minute integrated demand.
- 2) On Peak is from 7 am to 9 pm dally.
- 3) Maximum non-coincident kW demand = average of the individual maximum demands.
- 4) Diversity factor = ratio of the weighted sum of the maximum demand of each member of the class to the maximum coincident demand of the entire class.
- 5) Load factor = ratio (as a %) of kWh / (peak demand x number of hours).
- 6) Coincidence factor = ratio (as a %) of the maximum demand of the class to the weighted sum of the maximum demand of each member of the class.

Table 5.2 HOURLY LOAD (kW) DATA FOR THE DAYS OF THE CLASS PEAKS

Schedule R: Residential Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	Aug-01	<u>Sep-01</u>	Oct-01	Nov-01	<u>Dec-01</u>	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02
1	26,132	23,327	25,459	23,777	28,101	25,829	22,854	26,869	29,494	24,073	28,728	29,927
2	22,787	22,345	23,179	20,491	33,877	22,586	18,599	23,570	27,600	25,159	25,820	25,590
3	23,653	21,452	20,921	20,574	50,230	23,171	19,852	22,221	21,365	21,331	21,721	24,299
4	23,605	23,442	25,166	21,297	59,117	23,219	18,360	20,566	23,828	21,490	22,644	25,675
5	33,012	23,606	23,858	24,550	67,608	21,066	29,562	21,852	21,726	25,105	25,414	25,956
6	35,696	37,178	30,236	38,990	69,829	33,897	32,052	34,166	31,688	33,546	29,041	31,763
7	47,358	47,436	43,470	53,765	102,138	39,375	48,270	36,427	40,599	49,945	40,552	54,751
8	44,807	41,141	42,656	49,207	78,154	50,388	50,133	51,223	41,426	46,085	39,663	45,531
9	35,216	36,753	47,872	35,795	50,859	46,296	47,551	53,291	45,195	40,724	50,011	44,176
10	36,797	37,028	41,253	33,511	47,766	50,077	41,536	50,820	51,391	44,550	34,344	50,718
11	39,373	39,742	50,113	37,607	46,042	43,605	46,076	43,475	57,552	46,092	34,095	47,331
12	40,035	45,384	47,690	40,986	40,861	41,507	38,350	53,127	60,209	39,426	43,547	41,335
13	38,439	41,518	41,597	39,738	42,874	42,355	37,996	51,798	53,268	46,633	40,096	39,699
14	39,166	44,211	37,898	37,873	44,220	51,073	39,295	46,940	45,513	45,513	36,813	35,187
15	38,701	44,075	43,390	42,675	40,575	47,402	44,923	50,008	51,201	38,614	35,235	38,332
16	42,986	45,105	46,681	44,273	36,156	47,927	36,291	59,622	53,860	50,584	44,512	47,124
17	42,052	54,664	55,911	47,139	38,620	66,199	46,845	60,826	56,787	46,792	46,375	45,883
18	56,090	69,400	76,178	72,438	53,090	84,324	56,017	76,980	74,603	67,880	48,659	58,273
19	64,033	86,099	84,425	94,668	58,008	90,503	91,892	83,755	85,204	81,520	75,311	82,954
20	79,282	71,063	63,831	64,722	42,066	72,464	78,537	72,356	72,009	73,649	57,178	79,507
21	68,919	57,691	62,002	62,663	26,488	67,587	60,455	62,980	58,521	62,380	57,458	63,003
22	50,477	49,711	49,116	54,794	22,978	56,058	60,476	59,978	53,974	53,525	54,227	55,082
23	41,374	36,512	38,503	46,556	22,198	49,037	37,075	45,909	42,666	37,911	46,167	53,139
24	30,038	29,271	28,742	31,399	22,108	29,733	24,895	33,048	27,666	31,210	33,825	35,086
Average	41,668	42,840	43,756	43,312	46,832	46,903	42,829	47,575	46,973	43,906	40,477	45,013

Table 5.3
HOURLY LOAD (kW) DATA PER CUSTOMER FOR THE DAYS OF THE CLASS PEAKS

Schedule R: Residential Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u> Aug-01</u>	Sen-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	<u>May-02</u>	<u>Jun-02</u>	<u>Jul-02</u>
1	0.48	0.43	0.47	0.44	0.52	0.47	0.42	0.49	0.54	0.44	0.52	0.54
2	0.42	0.41	0.43	0.38	0.62	0.41	0.34	0.43	0.50	0.46	0.47	0.46
3	0.44	0.40	0.38	0.38	0.92	0.42	0.36	0.41	0.39	0.39	0.40	0.44
4	0.44	0.43	0.46	0.39	1.09	0.42	0.34	0.38	0.43	0.39	0.41	0.46
5	0.61	0.44	0.44	0.45	1.24	0.39	0.54	0.40	0.39	0.46	0.46	0.47
6	0.66	0.69	0.56	0.72	1.28	0.62	0.59	0.62	0.58	0.61	0.53	0.57
7	0.88	0.87	0.80	0.99	1.88	0.72	0.88	0.66	0.74	0.91	0.74	0.99
8	0.83	0.76	0.78	0.90	1,44	0.92	0.92	0.93	0.75	0.84	0.72	0.82
9	0.65	0.68	0.88	0.66	0.93	0.85	0.87	0.97	0.82	0.74	0.91	0.80
10	0.68	0.68	0.76	0.62	0.88	0.92	0.76	0.93	0.93	0.81	0.62	0.92
11	0.73	0.73	0.92	0.69	0.85	0.80	0.84	0.79	1.05	0.84	0.62	0.86
12	0.74	0.84	0.88	0.75	0.75	0.76	0.70	0.97	1.09	0.72	0.79	0.75
13	0.71	0.77	0.77	0.73	0.79	0.77	0.69	0.94	0.97	0.85	0.73	0.72
14	0.72	0.81	0.70	0.70	0.81	0.93	0.72	0.86	0.83	0.83	0.67	0.64
15	0.72	0.81	0.80	0.78	0.75	0.87	0.82	0.91	0.93	0.70	0.64	0.69
16	0.80	0.83	0.86	0.81	0.66	0.88	0.66	1.09	0.98	0.92	0.81	0.85
17	0.78	1.01	1.03	0.87	0.71	1.21	0.86	1.11	1.03	0.85	0.84	0.83
18	1.04	1.28	1.40	1.33	0.97	1.54	1.02	1.40	1.36	1.23	0.88	1.05
19	1.18	1.59	1.55	1.74	1.07	1.65	1.68	1.53	1,55	1.48	1.37	1.50
20	1.47	1.31	1.17	1.19	0.77	1.32	1.43	1.32	1.31	1.34	1.04	1.44
21	1.27	1.06	1.14	1.15	0.49	1.24	1.10	1.15	1.06	1.13	1.04	1.14
22	0.93	0.92	0.90	1.01	0.42	1.02	1.10	1.09	0.98	0.97	0.99	1.00
23	0.77	0.67	0.71	0.86	0.41	0.90	0.68	0.84	0.78	0.69	0.84	0.96
24	0.56	0.54	0.53	0.58	0.41	0.54	0.45	0.60	0.50	0.57	0.62	0.63
Average	0.77	0.79	0.81	0.80	0.86	0.86	0.78	0.87	0.85	0.80	0.74	0.81

Table 5.4

CLASS CONTRIBUTIONS TO THE SYSTEM AND DAY PEAKS

Schedule R: Residential Service 60-Minute Integrated kW Demand at the Net-to-System Level, Normalized

	EMERSHAL	MARINGRADAR	ENTER STREET OF THE STREET OF THE STREET			
<u>Month</u>	CLASS KW	% OF SYSTEM	CLASS kW	% OF SYSTEM		
January	93,627	55%	43,033	29%		
February	84,976	51%	44,882	30%		
March	84,047	51%	47,791	32%		
April	75,598	46%	43,683	29%		
May	85,120	53%	41,612	28%		
June	67,506	42%	46,473	30%		
July	75,289	45%	44,669	28%		
August	83,466	50%	44,285	28%		
September	77,223	47%	44,376	29%		
October	81,411	48%	41,059	27%		
November	85,317	50%	52,375	34%		
December	98,704	57%	44,414	29%		
Average	82,690	50%	44,888	29%		

Note: The 12-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32

Table 5.5
CLASS kWh LOAD BY TIME-OF-USE AT THE SALES LEVEL

Schedule R: Residential Service

	kWh	kWh Load by Time-of-Use					
Month	Priority Peak	On-peak	Off-peak	Total			
Aug-01	5,553,670	15,580,396	9,966,935	31,101,001			
Sep-01	4,684,997	15,536,184	8,998,508	29,219,688			
Oct-01	5,626,649	15,324,324	9,203,638	30,154,611			
Nov-01	5,369,008	15,894,611	9,120,088	30,383,707			
Dec-01	5,622,976	17,062,183	9,735,670	32,420,830			
Jan-02	5,937,426	17,432,654	9,871,408	33,241,488			
Feb-02	5,183,170	15,086,287	8,722,243	28,991,701			
Mar-02	5,027,875	17,221,345	9,602,184	31,851,404			
Apr-02	5,706,535	15,169,841	9,722,311	30,598,687			
May-02	5,420,957	15,883,432	9,692,065	30,996,454			
Jun-02	4,675,191	16,081,745	9,436,261	30,193,197			
Jul-02	5,601,086	16,393,686	10,519,968	32,514,740			
Total	37,552,240	113,268,990	67,566,441	218,387,671			
Percent	17%	52%	31%	100%			

Note:	Normatized	sales f	rom samp	le est	imates
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Percent k	Wh Load by Tim	e-of-Use	
Priority Peak	On-peak	Off-peak	Total
18%	50%	32%	100%
16%	53%	31%	100%
19%	51%	31%	100%
18%	52%	30%	100%
17%	53%	30%	100%
18%	52%	30%	100%
18%	52%	30%	100%
16%	54%	30%	100%
19%	50%	32%	100%
17%	51%	31%	100%
15%	53%	31%	100%
17%	50%	32%	100%

Time-of-Use Definitions:

Priority Peak: 5 pm - 9 pm, Monday through Friday On-Peak: 7 am - 5 pm, Monday through Friday

7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

Table 5.6

AVERAGE WEEKDAY - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

<u>Hour</u>	January	Februery	March	<u>April</u>	May	<u>June</u>	July	August	September	<u>October</u>	November	December
1	27,941	27,120	29,062	30,095	28,180	30,241	32,092	29,300	27,666	27,503	27,255	28,163
2	25,517	25,051	25,546	26,050	25,510	27,628	28,853	26,335	25,102	24,936	24,748	25,843
3	24,722	24,603	24,938	25,372	23,712	25,294	27,155	25,679	24,360	24,062	24,254	25,075
4	24,562	23,273	24,369	26,081	25,260	26,834	27,905	26,230	24,578	24,812	24,092	24,331
5	27,703	27,601	27,033	27,472	25,528	26,616	28,279	28,674	26,801	27,274	28,957	28,680
6	36,355	34,702	35,796	35,000	34,377	33,812	34,697	34,631	37,065	36,586	35,072	36,493
7	49,585	48,971	47,294	50,894	52,030	47,213	46,884	49,263	49,863	48,813	49,758	46,200
8	53,924	53,433	51,510	50,150	48,010	48,559	47,709	46,738	46,590	47,415	49,840	50,274
9	47,535	47,426	47,347	42,484	43,550	45,241	46,171	41,582	39,966	41,027	42,490	44,267
10	47,499	46,097	46,621	42,251	41,699	43,960	46,636	41,893	39,483	41,324	41,236	45,088
11	47,038	45,442	45,768	42,414	42,659	44,881	47,856	42,245	40,172	41,237	43,919	45,385
12	46,368	43,939	44,293	43,558	42,280	45,701	47,954	42,757	40,048	41,150	44,115	44,843
13	46,899	43,489	43,918	43,112	42,980	45,218	47,411	43,615	41,087	41,240	43,050	44,308
14	44,607	41,435	42,267	41,191	41,542	45,324	44,445	42,143	40,571	40,934	42,484	42,762
15	43,887	41,252	42,187	41,065	41,211	44,373	44,525	43,285	40,626	40,520	43,824	43,438
16	48,372	45,006	47,023	47,252	48,847	50,019	51,933	47,208	45,345	46,295	47,467	49,330
17	59,057	53,469	53,011	52,342	51,549	52,667	55,090	53,839	50,220	55,171	56,335	58,854
18	72,814	66,866	67,499	64,620	62,624	62,081	64,664	65,494	62,708	68,675	71,124	73,181
19	85,523	79,912	73,493	72,386	69,858	70,207	71,408	68,636	70,537	77,992	84,277	86,082
20	78,117	79,181	73,811	72,780	69,537	69,290	69,755	70,457	68,903	70,201	72,969	77,287
21	67,235	66,712	65,254	65,533	62,064	62,771	63,154	64,093	59,503	61,513	64,183	68,430
22	56,778	56,596	55,537	57,559	54,215	55,995	57,045	56,189	51,611	52,349	55,382	58,075
23	45,770	46,371	45,855	45,648	45,367	47,099	51,924	45,909	41,985	42,303	44,693	46,978
24	34,205	32,810	35,356	35,090	34,311	36,119	39,917	35,722	32,363	32,550	33,187	35,706
Average	47,584	45,865	45,616	45,017	44,046	45,298	46,811	44,663	42,798	43,995	45,613	47,045

Table 5.7

AVERAGE WEEKDAY - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	Jul-02
1	25,713	24,027	23,555	23,353	24,367	24,883	24,148	25,083	26,854	24,875	26,268	28,671
2	23,132	22,010	21,632	21,011	22,118	22,463	21,958	21,844	22,578	22,280	23,627	25,513
3	22,523	20,832	20,269	20,587	21,393	21,376	21,914	21,216	22,056	20,686	21,473	23,496
4	23,384	21,490	21,329	20,934	21,579	21,788	20,590	20,898	23,143	22,798	23,853	25,493
5	26,121	24,102	24,104	26,182	26,000	25,354	25,259	23,463	24,708	22,275	22,778	24,954
6	33,233	35,855	34,970	32,879	35,210	34,724	32,237	33,860	33,099	31,475	30,690	31,588
7	47,713	47,180	44,976	46,752	43,156	47,475	44,977	43,012	47,864	49,707	45,922	45,562
8	43,799	45,758	44,295	45,984	46,699	51,610	49,674	48,581	47,520	44,161	45,712	44,121
9	38,332	37,970	37,693	38,420	39,709	44,365	44,693	45,065	39,298	41,065	42,233	42,949
10	38,075	37,204	38,029	37,953	41,098	44,658	43,460	44,677	39,473	39,793	40,061	43,132
11	38,314	38,345	38,026	40,893	41,223	43,826	43,125	44,717	39,831	40,935	41,006	44,280
12	38,778	37,808	37,629	40,757	40,487	43,401	41,173	42,343	41,007	40,151	42,397	44,354
13	40,163	39,202	37,830	39,971	41,087	44,618	41,207	42,234	41,035	41,015	41,746	44,265
14	38,446	38,694	37,421	38,904	39,184	41,368	38,291	40,233	38,823	38,947	41,490	41,003
15	39,535	38,661	36,834	39,891	38,928	40,176	38,114	39,960	38,208	38,336	40,441	40,798
16	43,445	42,842	42,761	43,476	45,918	44,932	41,337	45,173	44,895	47,128	47,018	49,612
17	49,744	46,171	50,747	51,112	54,716	55,000	48,529	48,713	47,514	46,089	46,049	49,741
18	62,076	60,183	63,722	64,879	68,020	69,300	61,399	64,601	59,868	57,127	55,103	59,010
19	64,379	67,743	72,549	79,673	81,086	81,543	75,354	69,174	69,041	66,416	67,210	69,407
20	66,166	64,723	64,353	66,798	69,719	70,707	74,179	69,749	69,144	65,597	64,985	66,477
21	59,818	53,929	55,133	57,100	62,324	61,185	61,866	61,101	61,335	57,267	58,764	59,701
22	52,111	47,627	47,464	50,237	53,670	53,204	54,477	52,688	54,660	50,968	52,462	55,255
23	40,492	36,899	36,728	38,697	40,361	40,302	41,067	40,812	40,512	39,540	41,489	47,521
24	31,053	27,675	27,848	28,106	30,207	29,632	28,512	30,539	30,746	29,351	30,612	35,420
Average	41,106	39,872	39,996	41,440	42,844	44,079	42,397	42,481	41,801	40,749	41,391	43,430

Table 5.8

AVERAGE WEEKEND - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Hour	January	February	March	April	May	June	July	August	September	October	November	December
1	31,587	28,863	30,038	32,294	30,282	31,228	32,928	30,286	30,166	29,272	28,300	30,903
2	27,519	25,556	26,458	27,836	26,704	28,231	29,054	27,208	26,122	25,184	26,034	27,023
3	25,866	25,007	24,794	25,735	24,488	25,204	26,955	26,727	24,765	23,269	24,463	25,226
4	24,501	24,344	24,515	26,324	26,088	27,401	27,843	25,697	25,083	25,143	24,235	25,173
5	27,655	25,770	26,889	27,332	26,600	26,580	28,299	26,991	26,183	25,632	25,786	26,739
6	31,932	30,783	33,325	33,256	30,708	31,286	31,944	31,210	29,610	30,454	32,334	31,953
7	38,941	37,651	38,836	42,228	41,677	39,221	39,995	37,889	36,599	39,619	39,063	38,009
8	47,699	50,571	48,582	50,633	49,952	46,490	47,848	46,092	45,457	48,218	47,971	49,026
9	54,544	56,314	53,248	55,005	55,564	52,200	55,964	53,773	51,624	51,914	53,656	54,200
10	57,270	56,600	54,615	53,465	55,764	53,186	55,603	55,195	53,139	51,359	55,949	55,672
11	57,789	55,581	55,704	52,455	53,045	54,379	57,645	53,920	53,052	51,671	55,589	57,454
12	55,318	53,939	53,155	52,009	53,234	53,728	53,733	51,847	51,040	49,885	54,275	53,665
13	52,486	54,526	52,933	52,575	52,079	52,451	50,915	52,430	49,093	49,013	52,056	53,746
14	52,033	52,676	52,396	51,110	51,388	51,955	49,639	49,987	49,373	48,406	51,049	52,349
15	51,235	52,338	49,364	52,864	50,257	51,421	51,448	50,401	49,129	49,607	52,185	54,708
16	55,196	53,468	53,145	56,358	57,219	56,589	57,234	54,657	54,102	53,171	54,572	56,749
17	65,221	61,108	58,604	59,048	60,469	57,853	58,894	61,250	58,080	60,178	62,392	63,962
18	76,416	70,679	68,733	68,200	66,220	64,232	66,803	69,646	69,806	73,554	72,977	74,421
19	85,077	78,716	71,437	73,080	69,368	67,333	69,357	68,913	73,234	78,328	80,829	84,283
20	78,101	76,083	71,091	70,785	68,728	66,758	66,757	71,247	68,089	66,597	70,801	75,127
21	68,121	67,329	63,728	64,758	62,543	62,151	62,852	63,461	59,767	61,757	63,632	66,758
22	58,679	56,767	55,818	57,136	54,774	53,547	56,882	56,939	51,463	51,690	54,392	58,551
23	45,802	46,013	46,356	47,298	45,951	46,157	49,348	46,859	42,669	41,525	44,612	47,853
24	34,327	34,771	36,921	36,170	35,276	36,242	40,428	37,182	34,238	32,658	34,178	36,539
Average	50,138	48,977	47,945	48,665	47,849	47,326	48,682	47,909	46,328	46,588	48,389	50,004

Table 5.9

AVERAGE WEEKEND - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	<u> Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u> Jul-02</u>
1	26,612	26,157	24,709	24,325	26,629	27,919	25,421	26,036	28,201	26,780	27,245	29,111
2	24,236	22,802	21,824	22,325	23,167	24,385	22,236	22,555	23,762	23,131	24,206	25,609
3	23,701	21,016	19,654	20,548	21,858	22,644	22,292	21,077	21,757	21,365	21,503	23,284
4	23,088	21,690	21,391	21,430	22,318	21,571	21,722	21,036	22,986	23,412	24,572	25,226
5	25,259	23,515	22,418	22,650	23,564	25,416	23,539	23,846	24,200	23,732	23,416	25,466
6	28,834	26,813	27,569	30,417	30,086	30,568	28,456	31,416	31,413	27,763	28,827	28,828
7	33,932	32,751	35,373	36,279	35,547	37,379	35,012	34,377	39,355	39,471	36,575	37,431
8	42,607	42,07D	44,295	44,566	45,237	44,382	47,618	43,976	47,113	46,553	43,157	43,909
9	49,841	47,863	48,128	49,177	48,236	50,168	51,171	47,134	50,910	52,497	47,923	52,193
10	50,217	49,021	46,793	51,938	49,611	52,000	49,655	49,272	48,043	51,433	47,220	50,304
11	49,694	49,524	47,459	51,218	51,982	53,302	49,518	52,517	48,560	47,799	49,168	53,431
12	47,456	45,944	45,122	50,636	47,655	50,780	48,470	49,408	48,231	49,502	49,577	48,218
13	47,780	43,807	44,987	48,148	50,450	48,201	49,574	49,161	48,648	48,273	47,357	45,539
14	44,514	44,755	43,771	46,205	48,441	47,545	47,432	49,514	46,826	47,125	46,515	44,916
15	45,528	43,489	44,105	47,010	50,125	46,069	47,939	44,598	49,324	45,712	46,333	45,918
16	50,428	49,361	47,783	49,631	52,398	50,393	48,895	48,772	52,493	54,213	53,559	53,515
17	56,922	52,968	55,525	57,435	61,061	62,664	57,163	52,811	53,235	54,243	50,964	52,402
18	66,542	66,686	68,716	66,141	67,888	73,525	66,814	64,500	63,374	59,898	58,953	60,311
19	61,873	66,995	71,017	74,910	75,603	79,288	73,142	64,122	68,318	64,373	63,430	65,533
20	63,821	61,443	58,809	62,409	64,514	70,093	68,327	63,355	64,011	63,912	61,476	61,862
21	55,051	52,958	55,321	55,317	57,818	61,555	63,600	56,622	58,730	58,447	56,809	57,512
22	51,483	45,303	45,470	48,796	51,472	54,532	53,627	50,774	53,234	52,101	48,351	55,198
23	41,966	36,910	36,040	38,710	41,046	39,176	40,704	40,629	42,241	40,618	39,836	44,058
24	32,721	29,615	27,817	29,051	31,082	29,028	30,837	32,512	31,035	31,083	32,006	35,073
Average	43,504	41,811	41,837	43,720	44,908	45,941	44,715	43,334	44,417	43,893	42,874	44,369

Exhibit 5.1 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

August 2001

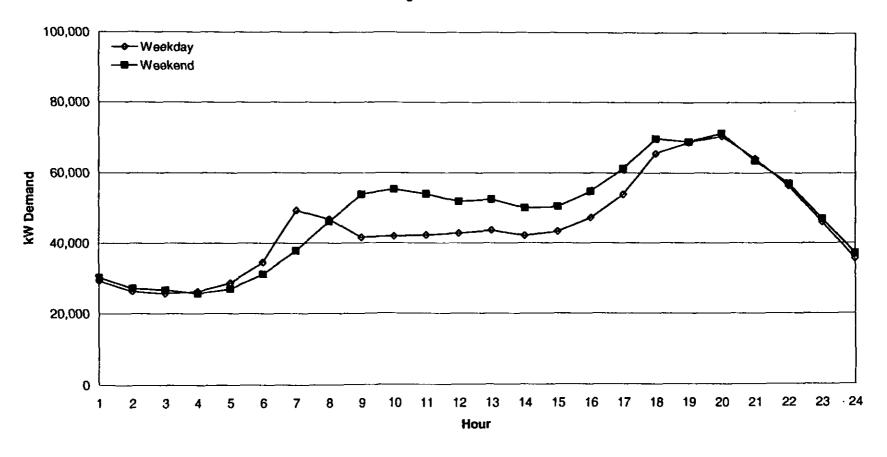


Exhibit 5.1 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

September 2001

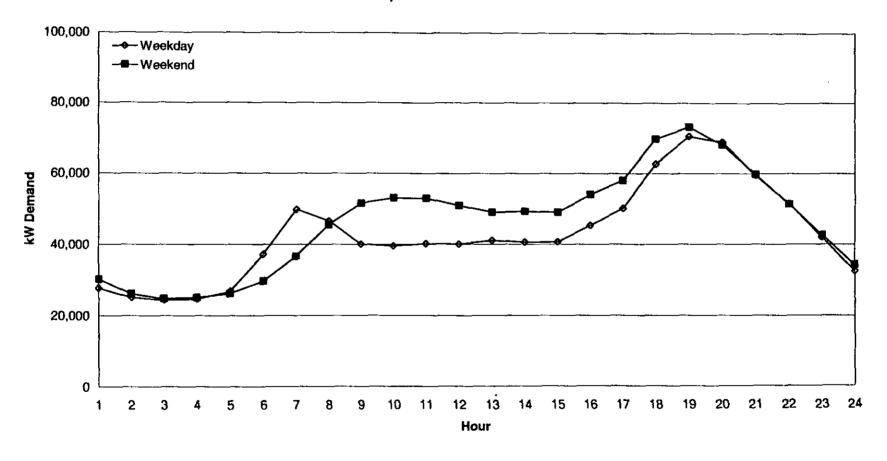


Exhibit 5.1 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

October 2001

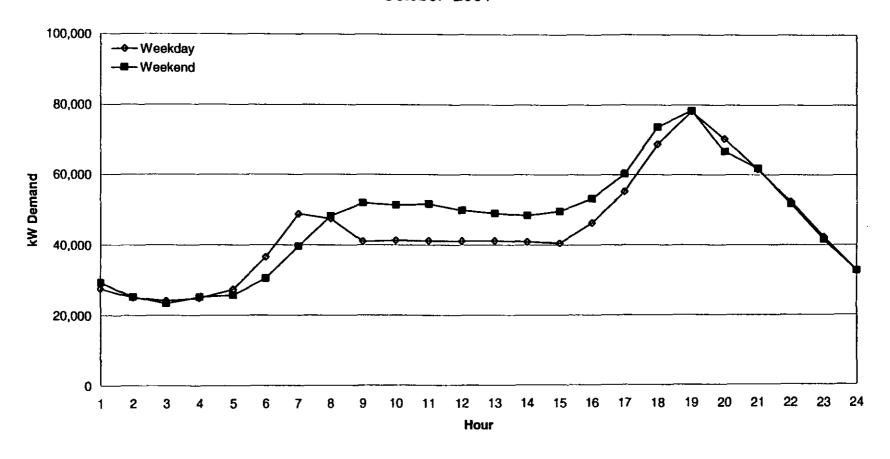


Exhibit 5.1 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

November 2001

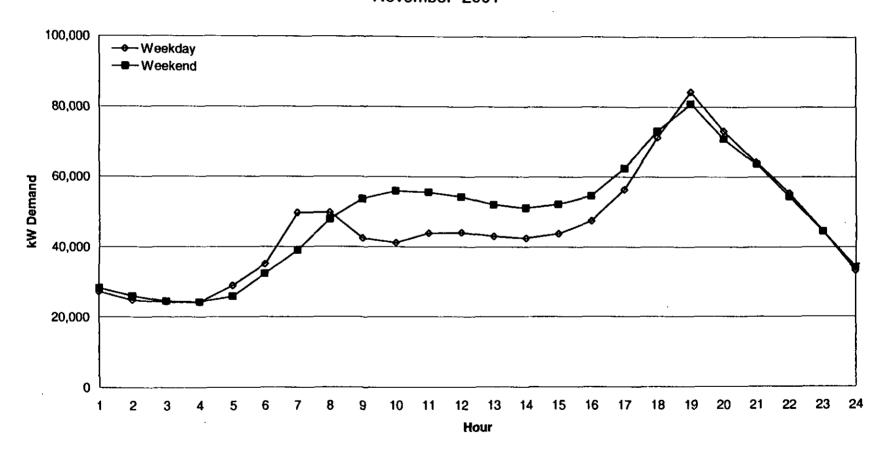


Exhibit 5.1 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

December 2001

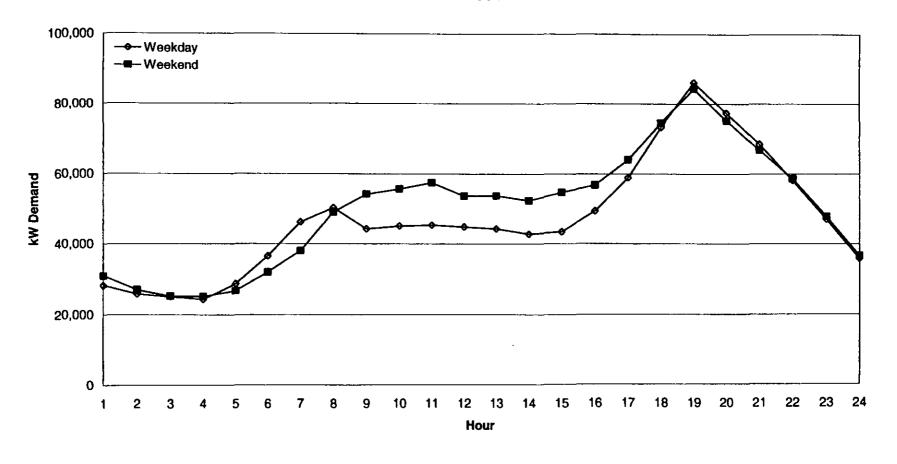


Exhibit 5.1 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

January 2002

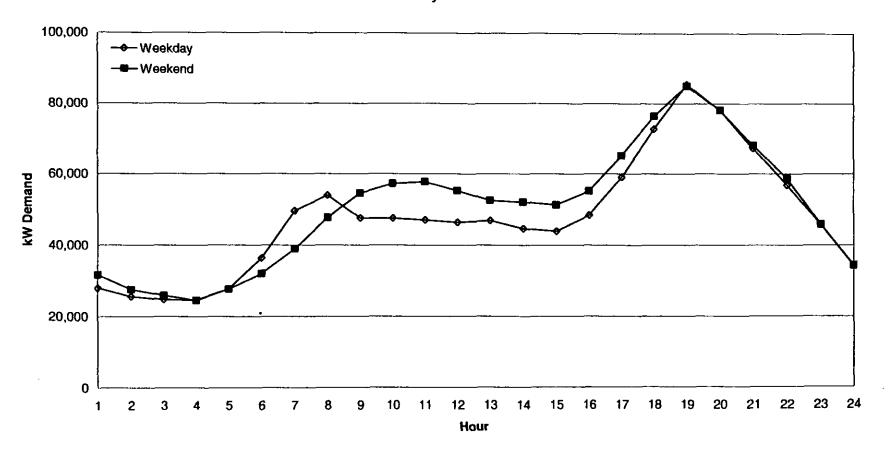


Exhibit 5.1 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

February 2002

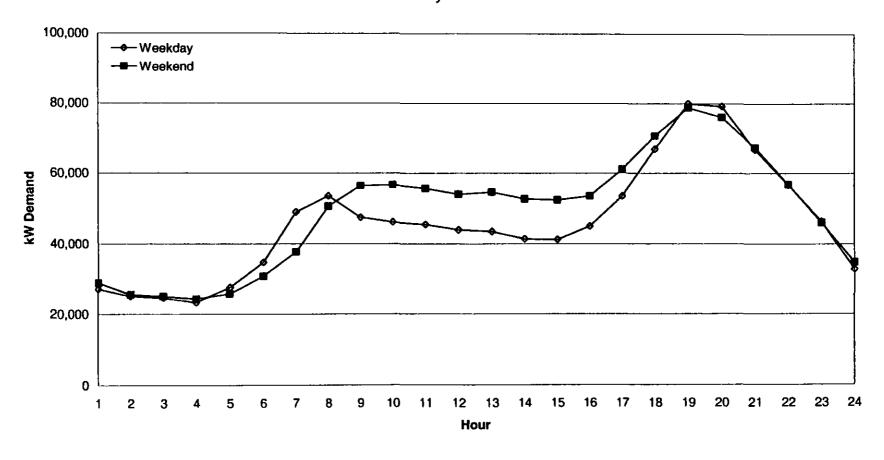


Exhibit 5.1 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

March 2002

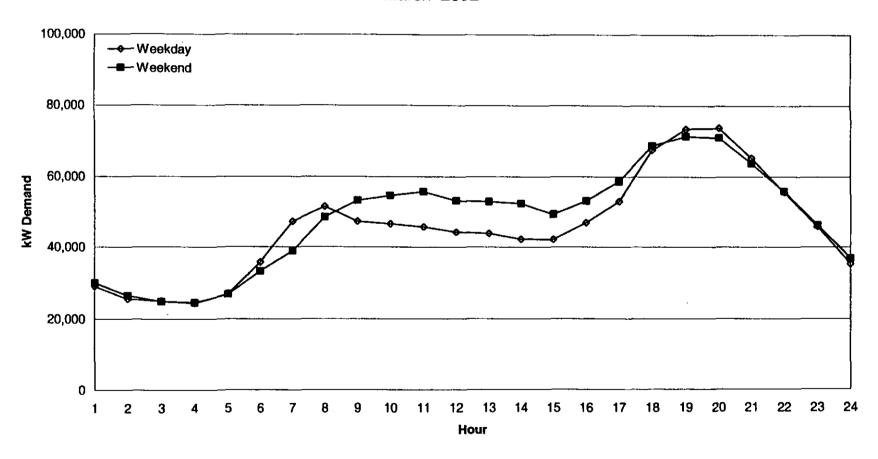


Exhibit 5.1 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

April 2002

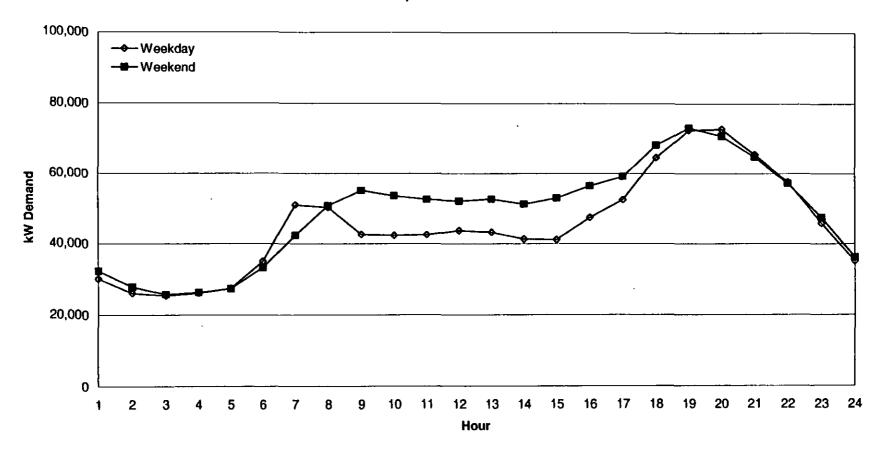


Exhibit 5.1 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

May 2002

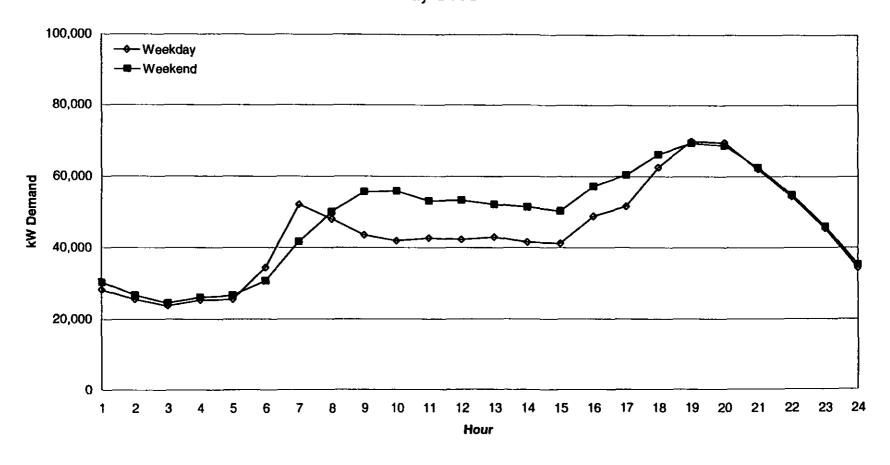


Exhibit 5.1 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

June 2002

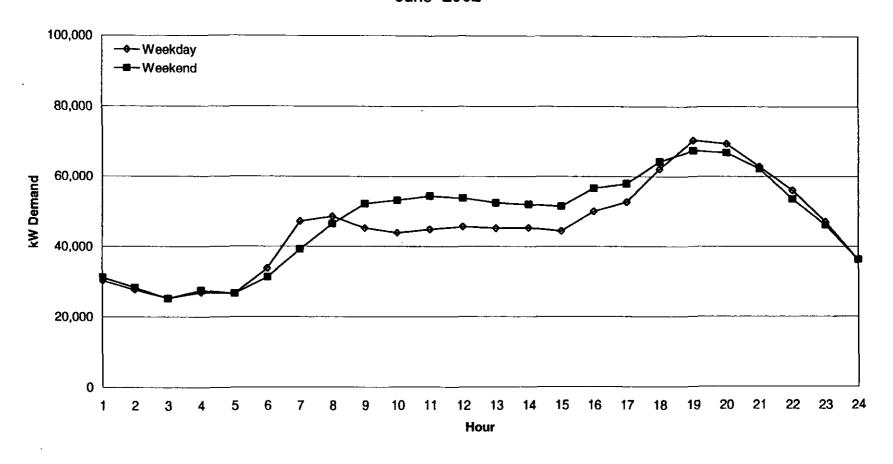
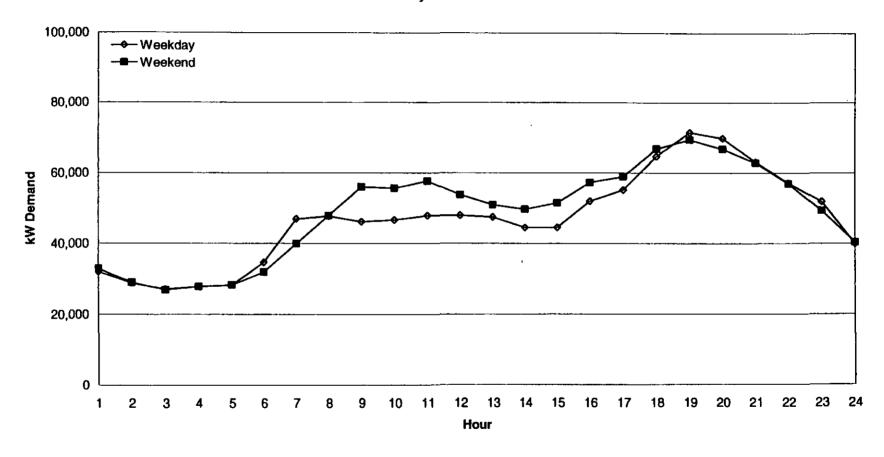


Exhibit 5.1 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule R: Residential Service

July 2002



6. SCHEDULE G: GENERAL SERVICE NON-DEMAND

The General Service Non-demand class consists of small commercial customers who have demands less than 25 kW and monthly consumption under 5,000 kWh. The second-largest class in the system, between August 2001 and July 2002 it contained an average of 9,008 customers, or 14% of all customers. But Schedule G accounted for just 9% of total sales, with an average consumption of 7,230 MWh per month, or 803 kWh per customer.

The Schedule G load data revealed these patterns and characteristics:

- 1. During the study period Schedule G's average monthly consumption ranged from a low of 700 kWh in February 2002 to a high of 854 kWh in August 2001. The weighted average monthly consumption for the customers in the sample was 803 kWh, which is equal to the average for the population (cf. Table 1.8).
- 2. Table 6.1 summarizes the monthly Schedule G load statistics per customer normalized to the sales level. Table 6.1 also shows the non-coincident and coincident demands of the General Service Non-demand sample.

The non-coincident demand is a customer's highest demand during a calendar month. The class non-coincident demand is the total non-coincident demand of all the customers in the class.

The coincident demand of a customer is the demand that a customer puts on the system at a specified time, either the system peak, day peak or class peak. The class coincident demand is the total demand of all customers in the class at the specified time.

The diversity factor represents the extent to which the peak demand of each individual customer in the class occurs simultaneously. It is the ratio of the maximum non-coincident demand per customer to the coincident demand per customer at the class peak, expressed as a percent.

The Schedule G sample's average diversity factor was 212%. The average non-coincident demand per customer was 4.2 kW; the average coincident demand per customer at the class peak of 2.0 kW. The maximum non-coincident demand was highest in March 2002; the maximum coincident demand was highest in August 2001. The coincident demand per customer was fairly constant throughout the year.

3. The sample's monthly load factor ranged from 53% to 57% between August 2001 and July 2002, with an average monthly load factor of 55%.

- 4. Schedule G's monthly class peaks occurred anywhere between 11 AM and 3 PM. The hourly loads on the day of the class peak in each month are reported in Tables 6.2 (total class) and 6.3 (average per customer).
- 5. Table 6.4 summarizes the class contribution to the system and day peaks normalized to the net-to-system generation level. To extrapolate the demand from the sales level to the net-to-system generation, the sample-based estimates for each class of sales at the peak hour were added, and the sum was normalized to the actual system or day peak for each month.
 - Schedule G's average contribution to the system peak, 9%, was lower than its average contribution to the day peak, 12%.
 - Its contribution to the system evening peak ranged from 12 MW in May 2002 to 16 MW in June 2002.
 - Its contribution to the system day peak ranged from 15 MW in May 2002 to 20 MW in June, August, November and December 2001.
- 6. As shown in Table 6.5, 60% of total Schedule G kWh consumption occurred during the system on-peak period (7 AM to 9 PM daily), with 13% occurring during the system priority peak period (5 PM to 9 PM, Monday through Friday).
- 7. Hourly load data at the system net-to-system and the sales levels for the average weekday and weekend of each month are presented in Tables 6.6 through 6.9. The net-to-system weekend and weekday loads are graphed in Exhibits 6.1a through 6.1l. The average weekday and weekend load profiles differ. The weekday load profiles for Schedule G begin increasing at about 7 AM, reach a plateau at noon, where they remain until 3 PM, decrease quickly until 6 PM, and then have a distinct evening peak at 8 PM that is 2-5,000 kWh lower than the mid-day plateau. The weekend load profiles peak slightly at noon, remain at about the same level until 6 PM, then rise to a second peak at 8 PM equal to or higher than the mid-day peak. From 8 AM through 7 PM the average weekday load was about 28% higher than the average weekend load.

Table 6.1 SUMMARY OF MONTHLY LOAD STATISTICS AT THE SALES LEVEL

Schedule G: General Service Non-demand

			% (kWh		kW D	emand at Tir	ne of	Maximum		Load Factor Based on	Load Factor Based on		idence F it Time of	
Month	Sample Size	kWh	On Peak	Off Peak	Class Peak Date - Hour	CLASS PEAK	SYS PM PEAK	TEM AM PEAK	Non-coincident Demand	Diversity Factor	Coincident Demand	Non-coincident Demand	Class Peak	System Peak	Day Peak
Α	В	С	D	Ε	F	G	н	1	J	K = (J/G)	L	М	N=(G/J)	O=(H/J)	P=(I/J
Aug-01	116	854	75%	25%	08/27-14:00	2.2	1,6	2.0	4.3	198%	53%	27%	51%	37%	46%
Sep-01	116	804	73%	27%	09/28-13:00	2.0	1.4	1.8	4.1	206%	56%	27%	49%	34%	44%
Oct-01	116	831	74%	26%	10/24-15:00	2.0	1.4	1,7	4.0	202%	56%	28%	50%	34%	43%
Nov-01	116	797	74%	26%	11/14-12:00	2.1	1.5	2.0	4.0	194%	54%	28%	52%	37%	50%
Dec-01	116	784	72%	28%	12/19-15:00	2.0	1.3	1.8	4.2	215%	53%	25%	47%	32%	43%
Jan-02	116	783	72%	28%	01/29-11:00	1.8	1.4	1.8	4.3	232%	57%	25%	43%	32%	43%
Feb-02	116	700	72%	28%	02/08-14:00	1.9	1.5	1.6	4.4	235%	55%	24%	43%	34%	37%
Mar-02	116	813	73%	27%	03/15-15:00	2.0	1.5	1.7	4.5	225%	55%	24%	44%	34%	37%
Apr-02	116	770	73%	27%	04/19-12:00	1.9	1.6	1.7	4.2	219%	56%	26%	46%	38%	41%
May-02	116	817	73%	27%	05/31-16:00	2.0	1.3	1.6	4.0	203%	56%	28%	49%	32%	40%
Jun-02		827	73%	27%	06/05-16:00	2.1	1.5	1.9	4.4	211%	54%	26%	47%	34%	42%
Jul-02	116	851	73%	27%	07/02-12:00	2.1	1.5	2.0	4.4	208%	54%	26%	48%	33%	44%
Average	116	803	73%	27%		2.0	1.4	1.8	4.2	212%	55%	26%	47%	34%	42%

Notes:

- 1) kW Demand is 60-minute integrated demand.
- 2) On Peak is from 7 am to 9 pm daily.
- 3) Maximum non-coincident kW demand = average of the individual maximum demands.
- 4) Diversity factor = ratio of the weighted sum of the maximum demand of each member of the class to the maximum coincident demand of the entire class.
- 5) Load factor = ratio (as a %) of kWh / (peak demand x number of hours).
- 6) Coincidence factor = ratio (as a %) of the maximum demand of the class to the weighted sum of the maximum demand of each member of the class.

Table 6.2
HOURLY LOAD (kW) DATA FOR THE DAYS OF THE CLASS PEAKS

Schedule G: General Service Non-demand 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	6,006	6,524	6,028	5,814	5,968	6,018	6,306	6,125	6,040	6,147	6,095	6,449
2	6,128	8,046	5,776	5,769	5,716	5,614	5,772	5,922	6,153	6,093	6,060	6,284
3	5,697	6,120	5,609	5,565	5,519	5,408	5,735	5,955	5,903	5,867	5,956	6,270
4	5,689	5,985	5,605	5,659	5,592	5,477	6,026	5,797	5,819	5,734	5,903	6,280
5	5,759	8,017	6,054	5,835	5,788	5,886	6,099	5,788	6,107	6,263	6,338	6,212
6	6,346	6,381	6,280	5,853	5,914	5,909	6,458	6,080	6,447	6,307	6,007	6,570
7	6,783	7,099	6,114	6,355	6,983	6,999	7,963	6,800	6,844	6,309	6,040	8,185
8	9,124	9,543	8,983	8,353	8,492	8,895	8,261	9,032	8,930	9,203	9,256	10,897
9	13,484	13,113	12,520	12,868	12,332	12,453	10,862	12,059	12,387	13,218	13,485	14,389
10	16,229	15,423	15,246	16,134	14,801	14,698	12,812	14,581	14,325	14,508	14,637	15,765
11	17,469	16,725	15,538	16,804	14,872	16,516	13,792	15,069	15,999	16,202	15,252	17,275
12	18,832	17,060	15,808	18,495	16,019	14,543	15,335	16,327	17,315	17,405	15,401	19,381
13	18,751	18,044	16,035	17,467	16,084	14,340	16,439	16,746	16,657	17,009	16,142	19,051
14	19,347	17,586	17,092	16,252	16,769	15,117	16,816	17,781	16,430	17,190	15,428	18,032
15	18,561	17,050	17,834	17,216	17,769	13,938	14,679	17,831	16,774	17,504	16,447	18,070
16	18,402	15,687	17,499	15,913	16,093	12,940	13,191	16,431	15,460	17,650	19,068	18,831
17	15,601	13,883	14,111	13,863	14,192	12,954	12,499	14,534	14,098	15,639	16,738	16,451
18	13,024	12,243	11,737	11,620	12,350	11,322	10,528	11,632	12,653	13,720	14,520	11,944
19	14,314	11,363	11,955	11,617	12,791	11,712	10,342	11,051	12,377	11,461	14,334	12,218
20	14,016	12,207	11,768	13,298	13,176	11,215	10,597	11,439	12,836	13,231	12,497	13,966
21	11,363	10,855	10,627	11,415	11,301	9,546	10,108	10,564	11,702	12,739	11,418	11,860
22	9,054	8,995	8,392	8,442	9,482	8,159	8,448	9,349	9,352	10,858	9,102	8,898
23	7,576	7,618	6,815	6,825	7,509	7,133	7,548	7,721	7,283	8,152	7,008	7,888
24	6,684	6,712	6,432	6,379	6,954	6,926	7,680	7,377	6,753	7,071	6,337	7,319
Average	11,843	11,177	10,827	10,992	10,936	10,155	10,179	10,916	11,027	11,478	11,228	12,020

Table 6.3
HOURLY LOAD (kW) DATA PER CUSTOMER FOR THE DAYS OF THE CLASS PEAKS

Schedule G: General Service Non-demand 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	<u>Dec-01</u>	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	0.67	0.73	0.67	0.65	0.66	0.67	0.70	0.68	0.67	0.68	0.67	0.71
2	0.68	0.67	0.64	0.64	0.63	0.62	0.65	0.66	0.68	0.67	0.67	0.69
3	- 0.64	0.68	0.62	0.62	0.61	0.60	0.64	0.66	0.65	0.65	0.66	0.69
4	0.64	0.67	0.62	0.63	0.62	0.61	0.67	0.65	0.64	0.63	0.65	0.69
5	0. 6 4	0.67	0.67	0.65	0.64	0.65	0.68	0.64	0.67	0.69	0.70	0.68
6	0.71	0.71	0.70	0.65	88.0	0.66	0.72	0.68	0.71	0.70	0.66	0.72
7	0.76	0.79	0.68	0.71	0.78	0.78	0.89	0.76	0.75	0.70	0.67	0.90
8.	1.02	1.06	1.00	0.93	0.94	0.99	0.92	1.01	0.98	1.02	1.02	1.20
9	1.51	1.46	1.39	1.43	1.37	1.38	1.21	1.34	1.37	1.46	1.49	1.59
10	1.81	1.72	1.69	1.79	1.64	1.63	1.43	1.62	1.58	1.60	1.62	1.74
11	1.95	1.88	1.73	1.87	1.65	1.84	1.54	1.68	1.76	1.79	1.69	1.90
12	2.10	1.90	1.76	2.06	1.78	1.62	1.71	1.82	1.91	1.92	1.70	2.14
13	2.09	2.01	1.78	1.94	1.79	1.59	1.84	1.87	1.84	1.88	1.79	2.10
14	2,16	1.96	1.90	1.81	1.86	1.68	1.88	1.98	1.81	1.90	1.71	1.99
15	2.07	1.90	1.98	1.91	1.97	1.55	1.64	1.99	1.85	1.93	1.82	1.99
16	2.06	1.74	1.94	1.77	1.79	1.44	1.47	1.83	1.70	1.95	2.11	2.08
17	1.74	1.54	1.57	1.54	1.58	1.44	1.40	1.62	1.55	1,73	1.85	1.81
18	1.45	1.36	1.30	1.29	1.37	1.26	1.18	1.30	1.40	1.52	1.61	1.32
19	1.60	1.26	1.33	1.29	1.42	1.30	1.16	1.23	1.36	1.27	1.59	1.35
20	1.57	1.36	1.31	1.48	1.46	1.25	1.18	1.27	1.42	1.46	1.38	1.54
21	1.27	1.21	1.18	1.27	1.25	1.06	1.13	1.18	1.29	1.41	1.26	1.31
22	1.01	1.00	0.93	0.94	1.05	0.91	0.94	1.04	1.03	1.20	1.01	0.98
23	0.85	0.85	0.76	0.78	0.83	0.79	0.84	0.86	0.80	0.90	0.78	0.87
24	0.75	0.75	0.71	0.71	0.77	0.77	0.86	0.82	0.74	0.78	0.70	0.81
Average	1.32	1.24	1.20	1.22	1.21	1.13	1.14	1.22	1.22	1.27	1.24	1.32

Table 6.4

CLASS CONTRIBUTIONS TO THE SYSTEM AND DAY PEAKS

Schedule G: General Service Non-demand 60-Minute Integrated kW Demand at the Net-to-System Level, Normalized

	EDWENIEWE SESSE	VENINGS EANGESSE	MEN SYSTEM	BOWESTANCE TO THE
Month	CLASS kW	% OF SYSTEM	CLASS kW	% OF SYSTEM
January	13,355	8%	19,121	13%
February	14,829	9%	15,880	11%
March	15,211	9%	15,633	11%
April	14,803	9%	16,843	11%
May	11,897	7%	15,403	10%
June	16,348	10%	19,743	13%
july	14,122	9%	19,383	12%
August	14,756	9%	19,648	13%
September	14,120	9%	17,108	11%
October	14,240	8%	18,643	12%
November	14,787	9%	19,537	13%
December	13,489	8%	19,983	13%
Average	14,330	9%	18,077	12%

Note: The 12-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32

Table 6.5
CLASS kWh LOAD BY TIME-OF-USE AT THE SALES LEVEL

Schedule G: General Service Non-demand

	kWh	kWh Load by Time-of-Use							
Month	Priority Peak	On-peak	Off-peak	Total					
Aug-01	1,042,984	4,658,154	1,949,027	7,650,166					
Sep-01	929,460	4,359,152	1,937,889	7,226,501					
Oct-01	1,061,957	4,471,468	1,949,363	7,482,788					
Nov-01	938,782	4,340,212	1,890,700	7,169,694					
Dec-01	906,709	4,196,118	1,960,134	7,062,961					
Jan-02	922,260	4,160,199	1,960,010	7,042,469					
Feb-02	857,513	3,626,893	1,781,033	6,265,439					
Mar-02	918,801	4,407,689	1,969,694	7,296,184					
Apr-02	1,023,024	4,073,518	1,885,565	6,982,107					
May-02	1,055,036	4,348,693	1,986,241	7,389,969					
Jun-02	955,793	4,509,495	2,010,163	7,475,451					
Jul-02	1,043,029	4,595,584	2,082,942	7,721,555					
Total	6,775,456	29,722,070	13,675,648	50,173,174					
Percent	14%	59%	27%	100%					

Note: Normalized sales from sample estimates

Priority Peak	On-peak	Off-peak	Total
14%	61%	25%	100%
13%	60%	27%	100%
14%	60%	26%	100%
13%	61%	26%	100%
13%	59%	28%	100%
13%	59%	28%	100%
14%	58%	28%	100%
13%	60%	27%	100%
15%	58%	27%	100%
14%	59%	27%	100%
13%	60%	27%	100%
14%	60%	27%	100%

Time-of-Use Definitions:

Priority Peak: 5 pm - 9 pm, Monday through Friday

On-Peak: 7 am - 5 pm, Monday through Friday

7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

Table 6.6

AVERAGE WEEKDAY - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Hour	January	February	March	<u>April</u>	May	<u>June</u>	<u>July</u>	August	September	October	November	December
1	6,754	6,728	6,857	6,604	6,872	7,280	7,201	6,789	7,081	7,000	6,968	6,860
2	6,526	6,357	6,791	6,628	6,774	7,137	7,138	6,555	6,794	6,775	6,877	6,667
3	6,621	6,192	6,638	6,507	6,619	7,097	7,154	6,387	6,815	6,794	6,688	6,592
4	6,441	6,242	6,504	6,399	6,515	6,752	6,681	6,297	6,591	6,580	6,474	6,321
5	6,513	6,383	6,568	6,460	6,822	7,420	7,031	6,215	6,579	6,459	6,336	6,311
6	6,523	6,638	6,411	6,428	6,718	6,952	7,166	6,275	6,438	6,377	6,440	6,168
7	7,230	7,624	7,431	6,894	6,689	6,917	7,222	6,545	7,225	6,980	6,977	6,967
8	9,148	8,902	8,875	8,992	9,389	10,567	11,122	9,904	9,581	9,730	9,673	9,376
9	12,960	11,400	12,484	12,620	13,068	14,968	15,187	14,231	13,913	13,794	14,098	13,821
10	15,194	13,926	14,885	14,572	15,151	17,318	17,102	16,913	16,225	16,115	16,723	15,680
11	16,370	14,920	16,162	15,927	16,202	18,325	18,018	18,551	17,025	17,332	17,445	16,834
12	16,307	15,237	16,770	16,193	16,847	18,084	18,793	19,240	17,644	17,720	17,987	17,159
13	15,795	15,094	16,503	15,765	16,547	17,988	18,231	19,164	17,794	17,682	17,874	16,591
14	16,195	15,475	16,639	15,934	16,782	18,039	18,316	18,930	17,586	17,708	17,627	16,726
15	16,266	15,561	16,549	16,113	17,008	18,056	18,345	18,935	17,502	17,783	18,004	16,744
16	15,650	15,620	16,366	15,892	16,435	18,052	17,181	18,422	17,162	17,333	17,294	15,660
17	13,855	14,418	15,309	14,635	15,828	17,307	16,113	15,619	15,369	15,010	15,383	14,138
18	11,417	12,293	12,500	12,065	13,200	14,617	13,472	12,405	12,628	12,968	13,425	12,389
19	12,098	12,567	12,925	12,079	12,362	12,757	11,620	12,237	12,664	13,185	12,802	12,920
20	12,562	12,488	13,790	13,381	13,568	14,139	13,236	13,834	14,020	14,014	13,256	12,881
21	11,149	11,100	11,959	11,849	12,314	12,668	11,856	11,979	12,653	12,414	11,752	11,013
22	8,815	8,753	9,150	8,925	9,491	9,882	9,458	9,289	9,649	9,408	9,130	9,246
23	7,893	8,213	8,399	7,997	8,419	8,504	8,230	8,337	8,504	8,224	8,180	8,572
24	7,523	7,818	7,585	7,273	7,804	8,079	7,776	7,557	7,816	7,587	7,756	7,755
Average	11,075	10,831	11,419	11,089	11,559	12,454	12,235	12,109	11,886	11,874	11,882	11,391

Table 6.7

AVERAGE WEEKDAY - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	<u>Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	<u>Mar-02</u>	Apr-02	May-02	<u> </u>	<u> Jul-02</u>
1	5,958	6,150	5,996	5,971	5,936	6,015	5,991	5,918	5,893	6,066	6,323	6,434
2	5,758	5,957	5,877	5,838	5,706	5,745	5,573	5,754	5,744	5,916	6,104	6,312
3	5,602	5,827	5,723	5,677	5,624	5,725	5,516	5,647	5,657	5,775	6,025	6,190
4	5,614	5,763	5,657	5,625	5,606	5,714	5,522	5,578	5,678	5,880	6,002	8,104
5	5,662	5,917	5,708	5,729	5,721	5,961	5,841	5,701	5,810	5,953	6,350	6,204
6	6,022	6,228	6,096	6,037	5,951	6,230	6,167	6,065	6,078	6,151	6,310	6,524
7	6,339	6,836	6,432	6,556	6,508	6,922	7,002	6,758	6,484	6,390	6,728	7,019
8	9,281	9,410	9,089	8,925	8,709	8,756	8,276	8,370	8,521	8,637	9,948	10,285
9	13,118	13,218	12,673	12,747	12,398	12,095	10,743	11,883	11,674	12,323	13,973	14,127
10	15,372	15,288	14,830	15,392	14,293	14,286	13,129	14,264	13,614	14,390	15,782	15,817
11	16,825	16,251	15,983	16,243	15,290	15,252	14,160	15,791	14,957	15,548	16,743	16,671
12	17,449	16,657	16,203	16,618	15,492	15,264	14,278	16,032	15,245	15,999	16,776	17,382
13	17,647	16,978	16,219	16,596	15,385	15,027	14,302	15,870	15,005	15,790	16,606	17,021
14	17,269	16,772	16,188	16,142	15,326	15,019	14,301	15,838	15,018	15,733	1 8 ,513	16,898
15	17,294	16,656	16,165	16,388	15,006	14,890	14,377	15,675	14,992	15,821	16,456	16,810
16	16,954	16,215	16,009	15,840	14,576	14,537	14,347	15,723	15,100	15,857	16,969	16,413
17	14,431	14,130	13,807	13,957	13,144	12,903	13,086	14,068	13,285	14,152	15,132	14,548
18	11,758	12,120	12,033	12,246	11,515	10,866	11,288	11,964	11,178	12,042	12,974	12,294
19	11,478	12,162	12,265	12,102	12,170	11,535	11,851	12,165	11,521	11,753	12,213	11,294
20	12,992	13,170	12,847	12,135	11,620	11,371	11,699	13,031	12,713	12,799	13,260	12,614
21	11,180	11,468	11,127	10,455	10,030	10,146	10,294	11,198	11,090	11,362	11,857	11,208
22	8,615	8,904	8,530	8,282	8,545	8,261	8,425	8,680	8,476	8,922	9,259	9,161
23	7,353	7,474	7,141	7,083	7,365	6,950	7,274	7,476	7,097	7,338	7,491	7,532
24	6,569	6,684	6,491	6,569	6,560	6,518	6,794	6,552	6,373	6,676	6,847	6,900
Average	11,106	11,093	10,795	10,798	10,353	10,249	10,010	10,667	10,300	10,720	11,360	11,323

Table 6.8

AVERAGE WEEKEND - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

<u>Hour</u>	January	February	<u>March</u>	April	<u>May</u>	June	<u>July</u>	August	September	October	November	December
1	6,756	7,094	7,226	6,998	6,920	7,755	7,494	7,043	7,153	7,210	7,240	7,097
2	6,530	6,646	6,935	6,897	6,788	7,413	7,252	6,631	6,856	6,724	7,069	6,923
3	6,564	6,222	6,766	6,807	6,635	7,183	6,932	6,614	6,926	6,778	6,908	6,711
4	6,402	6,198	6,606	6,536	6,485	6,641	6,531	6,409	6,672	6,557	6,535	6,455
5	6,223	6,348	6,322	6,423	6,306	6,979	6,572	6,106	6,475	6,346	6,517	6,506
6	6,149	6,470	6,021	6,053	6,193	6,462	6,489	6,233	6,502	6,323	6,234	6,070
7	6,268	6,608	6,420	5,632	5,589	6,097	5,841	6,150	6,355	6,222	6,260	6,110
8	6,548	6,655	7,044	6,296	6,685	7,339	6,984	7,300	7,129	7,267	7,221	6,772
9	8,226	7,983	8,940	8,155	8,050	9,240	8,003	8,715	8,827	8,929	9,161	8,724
10	9,683	9,818	10,351	9,795	9,502	11,012	9,674	10,322	10,321	10,792	10,558	10,135
11	10,851	10,977	11,610	11,053	11,189	12,393	10,829	11,962	11,252	11,781	11,624	10,828
12	11,169	11,235	11,848	11,451	11,159	12,026	11,658	12,439	11,925	12,100	11,902	11,506
13	10,622	10,523	11,613	11,052	11,070	11,750	11,273	12,427	11,934	11,767	11,758	10,405
14	10,229	10,056	11,344	10,941	10,816	11,709	10,747	12,167	11,426	11,735	11,631	10,219
15	10,641	10,328	11,752	10,313	10,641	11,489	10,787	11,811	11,200	11,422	11,326	10,100
16	10,273	10,120	11,719	10,273	10,333	11,469	10,222	11,441	10,809	11,002	10,591	9,647
17	9,409	9,680	11,420	10,379	10,621	12,082	10,750	10,193	10,100	10,123	9,894	9,418
18	9,048	9,574	10,458	10,308	10,324	11,433	10,321	9,543	9,416	9,678	10,004	9,857
19	10,279	10,632	12,101	10,744	10,134	11,138	9,643	10,026	10,599	11,318	10,946	11,332
20	10,535	11,117	12,475	11,623	11,136	12,247	11,032	11,582	11,938	12,448	12,149	11,514
21	9,541	9,655	10,724	10,277	9,896	10,747	9,856	10,533	10,692	10,546	10,745	10,550
22	8,171	8,285	8,999	8,531	8,450	9,558	8,404	8,328	8,980	8,782	8,677	9,269
23	7,935	7,949	8,384	8,072	7,986	8,758	8,116	7,628	8,117	7,855	8,046	8,554
24	7,538	7,520	7,394	7,433	7,287	8,010	7,752	7,153	7,475	7,538	7,416	7,599
Average	8,566	8,654	9,353	8,835	8,758	9,622	8,882	9,115	9,128	9,219	9,184	8,846

Table 6.9

AVERAGE WEEKEND - NORMALIZED AT THE SALES LEVEL

Schedule G: General Service Non-demand

60-Minute Integrated kW Demand

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	6,188	6,202	880,8	6,224	6,116	5,971	6,248	6,263	6,111	6,120	6,766	6,625
2	5,907	5,985	5,827	6,062	5,936	5,786	5,783	5,912	5,887	5,879	6,356	6,392
3	5,865	5,877	5,725	5,802	5,815	5,746	5,546	5,751	5,755	5,789	6,129	5,988
4	5,759	5,774	5,578	5,779	5,723	5,637	5,530	5,668	5,707	5,819	5,955	5,917
5	5,714	5,815	5,550	5,724	5,734	5,719	5,799	5,606	5,687	5,626	6,148	5,915
6	5,759	5,887	5,724	5,864	5,715	5,887	5,981	5,676	5,717	5,599	5,954	5,856
7	5,508	5,687	5,556	5,814	5,714	6,016	6,145	5,683	5,249	5,293	5,686	5,467
8	6,748	6,598	6,878	6,709	6,249	6,092	6,266	6,376	5,858	6,230	6,813	6,409
9	8,077	8,184	8,278	8,396	7,764	7,565	7,254	7,914	7,548	7,606	8,483	7,464
10	9,391	9,521	9,832	9,801	9,031	8,792	8,613	9,338	8,802	8,764	9,777	8,752
11	11,025	10,504	10,821	10,710	9,796	10,009	9,780	10,946	10,232	10,082	11,206	10,038
12	11,386	10,735	10,945	11,104	10,217	10,253	10,096	11,012	10,619	10,377	11,097	10,462
13	11,325	10,649	10,801	10,875	9,767	9,755	9,568	10,786	10,226	10,261	10,609	10,083
14	10,835	10,357	10,612	10,527	9,457	9,346	9.055	10,720	10,024	9,919	10,483	9,725
15	10,669	9,914	10,155	10,203	9,253	9,568	9,460	10,617	9,623	9,679	10,352	9,628
16	10,556	9,862	9,887	9,632	8,908	9,379	9,255	10,755	9,568	9,790	10,855	9,558
17	9,473	9,211	9,340	9,108	8,990	9,040	9,055	10,291	9,357	9,527	10,643	9,565
18	9,117	8,996	9,042	9,067	8,991	8,706	9,051	9,814	9,579	9,338	10,493	9,318
19	9,002	9,696	10,262	10,145	10,165	9,580	9,879	10,862	10,044	9,404	10,492	9,112
20	10,375	10,772	10,992	10,709	9,888	9,455	9,984	11,118	10,511	10,356	11,278	10,224
21	9,137	9,474	9,447	9,341	9,137	8,621	9,120	9,529	9,320	9,248	9,823	9,019
22	7,530	7,905	7,725	7,784	8,148	7,593	7,827	8,186	7,948	8,037	8,631	8,155
23	6,832	7,021	6,818	6,982	7,337	6,787	7,032	7,348	7,209	7,059	7,559	7,246
24	6,295	6,466	6,420	6,304	6,464	6,374	6,669	6,511	6,377	6,421	7,074	6,725
Average	8,270	8,212	8,254	8,278	7,930	7,820	7,875	8,445	8,040	8,009	8,694	8,068

Exhibit 6.1 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

August 2001

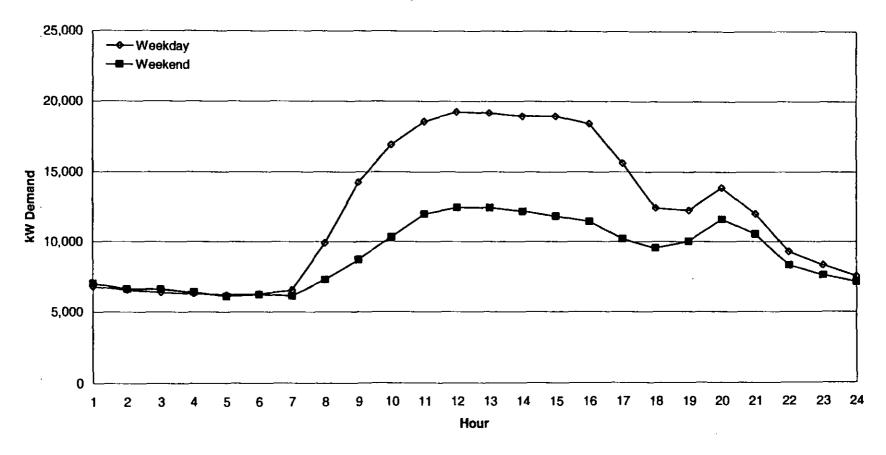


Exhibit 6.1 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

September 2001

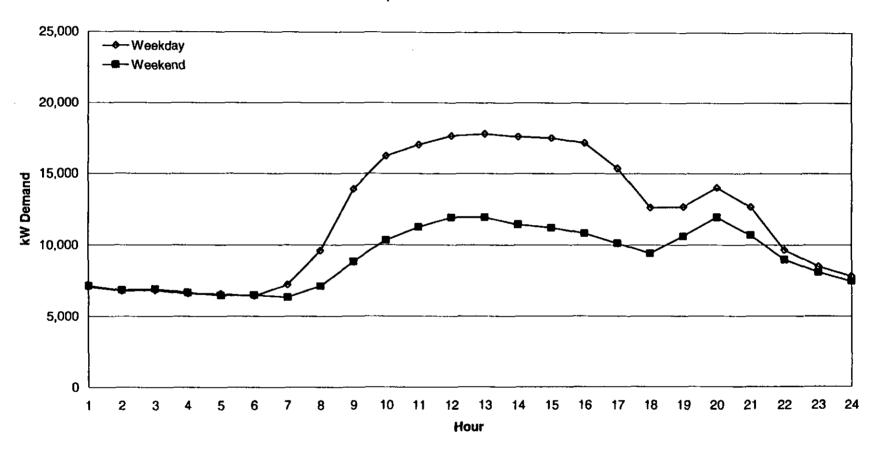


Exhibit 6.1 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

October 2001

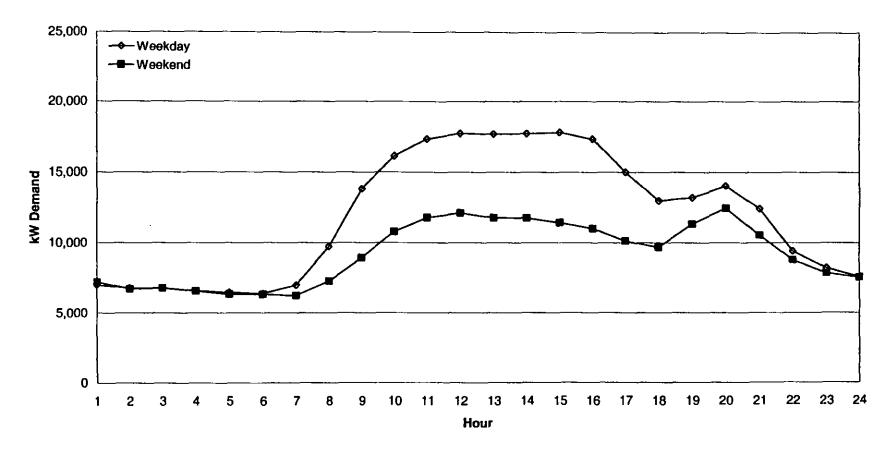


Exhibit 6.1 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

November 2001

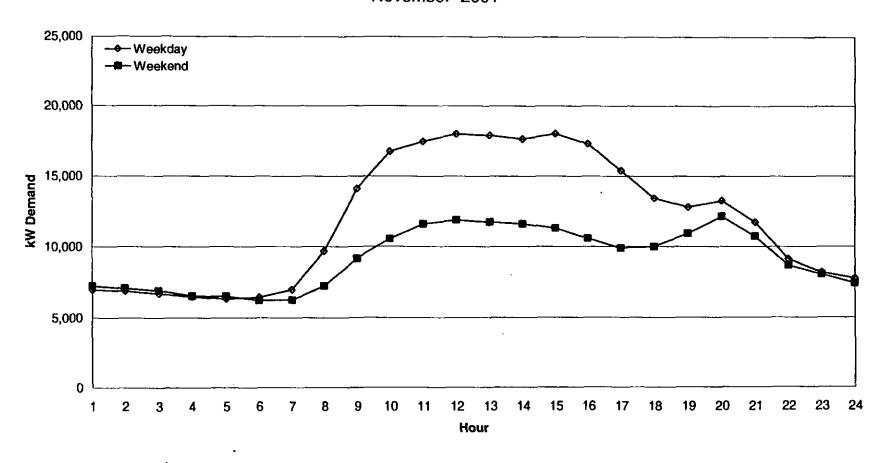


Exhibit 6.1 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

December 2001

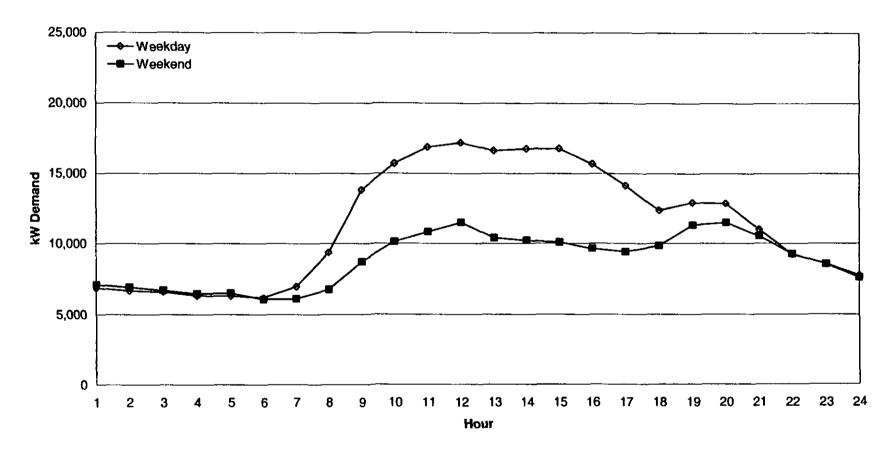


Exhibit 6.1 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

January 2002

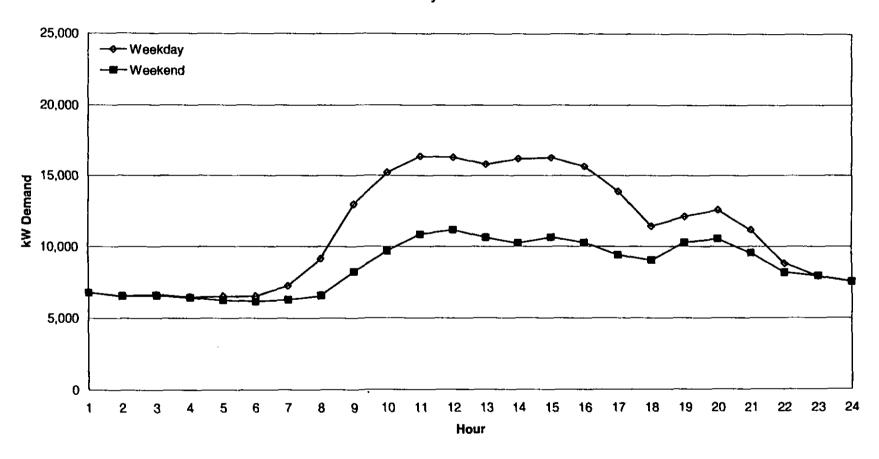


Exhibit 6.1 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule G: General Service Non-demand February 2002

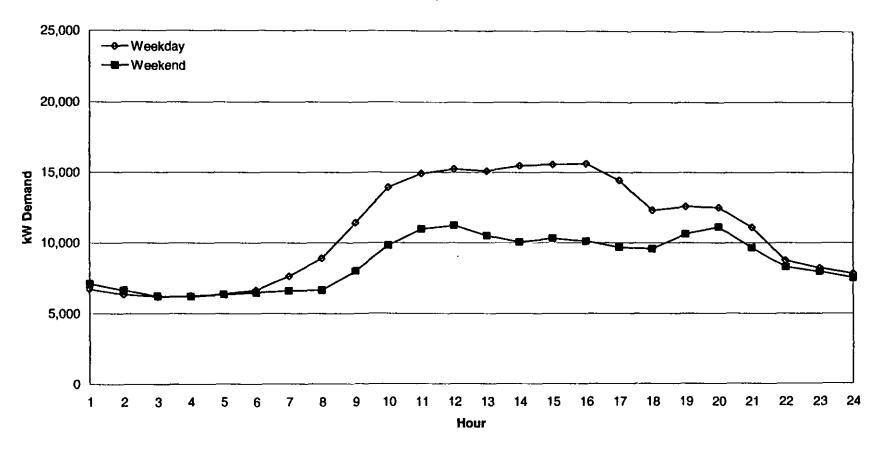


Exhibit 6.1 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

March 2002

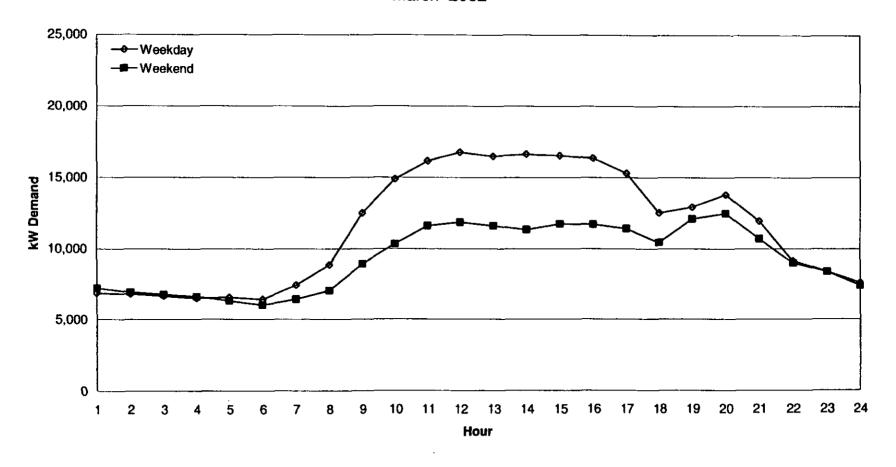


Exhibit 6.1 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

April 2002

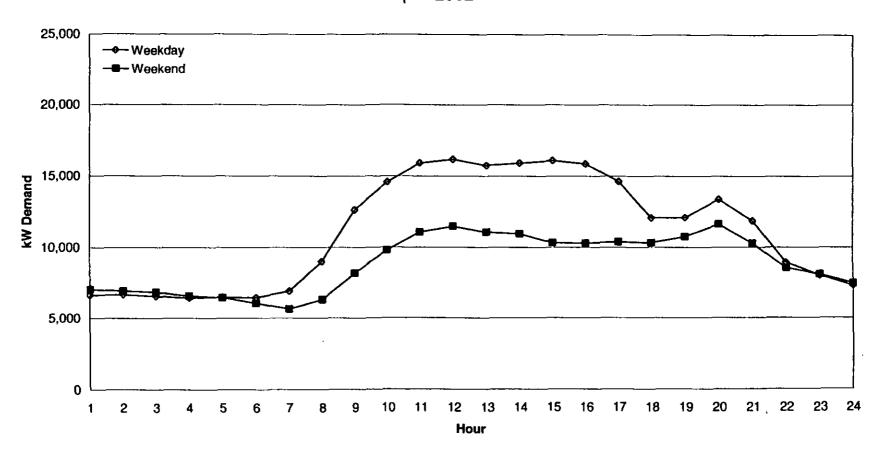


Exhibit 6.1 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule G: General Service Non-demand

May 2002

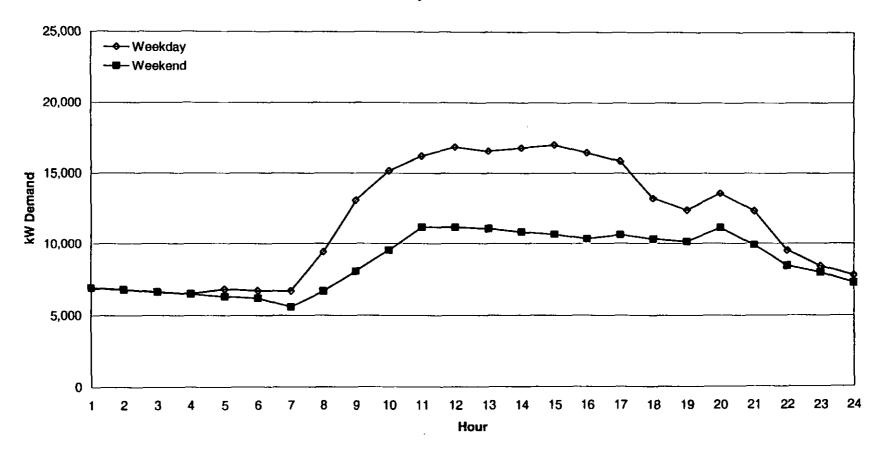


Exhibit 6.1 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

June 2002

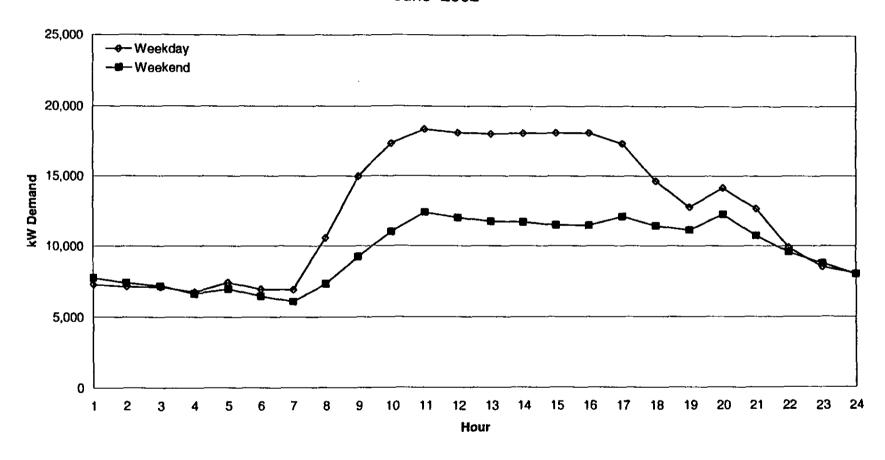
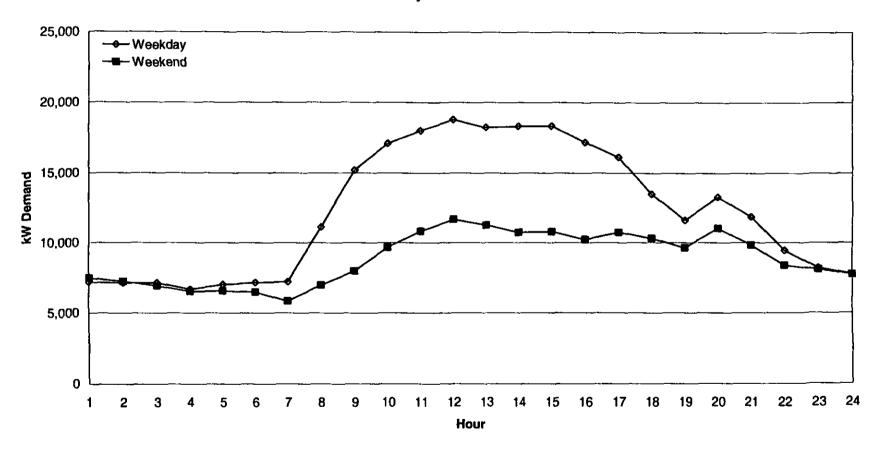


Exhibit 6.1 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule G: General Service Non-demand

July 2002



7. SCHEDULE J: GENERAL SERVICE DEMAND

The General Service Demand rate class consists of commercial customers who exceed 25 kW demand and monthly consumption of 5,000 kWh. Schedule J is the third-largest class in the system. From August 2001 through July 2002 it contained an average of 1,265 customers, or 2% of all customers. But it accounted for 27% of total sales, with an average consumption of 22,269 MWh per month, or 17,609 kWh per customer.

The Schedule J load data revealed these patterns and characteristics:

1. From August 2001 through July 2002, Schedule J's average monthly consumption ranged from a low of 14,937 kWh in February 2002 to a high of 19,160 kWh in August 2001.

The average energy consumption for the Schedule J sample was 17,366 kWh per month, which is 1.4% lower than the average for the population (cf. Table 1.9).

2. Table 7.1 summarizes the monthly Schedule J load statistics per customer normalized to the sales level. Table 7.1 also shows the non-coincident and coincident demands of the General Service Demand sample.

The non-coincident demand is a customer's highest demand during a calendar month. The class non-coincident demand is the total non-coincident demand of all the customers in the class.

The coincident demand of a customer is the demand that a customer puts on the system at a specified time, either the system peak, day peak or class peak. The class coincident demand is the total demand of all customers in the class at the specified time.

The diversity factor represents the extent to which the peak demand of each individual customer in the class occurs simultaneously. It is the ratio of the maximum non-coincident demand per customer to the coincident demand per customer at the class peak, expressed as a percent.

The Schedule J sample's average monthly diversity factor was 122%. The average non-coincident demand per customer was 51 kW; the average coincident demand per customer at the class peak of 42 kW. Both the maximum non-coincident demand and the maximum coincident demand occurred in September 2001.

3. The sample's monthly load factor during the study period ranged from 54% to 60%, with an average of 58%.

- 4. Schedule J's monthly class peaks occurred anywhere between 9 AM and 2 PM. The hourly loads on the day of the class peak in each month are reported in Tables 7.2 (total class) and 7.3 (average per customer).
- 5. Table 7.4 summarizes the class contribution to the system and day peaks normalized to the net-to-system generation level. To extrapolate the demand from the sales level to the net-to-system generation, the sample-based estimates for each class of sales at the peak hour were added, and the sum was normalized to the actual system or day peak for each month.

Schedule J's average contribution to the monthly system evening peaks, 23%, was lower than its contribution to the monthly daytime peaks, 34%.

Its contribution to the system evening peak ranged from 29 MW in December 2001 to 40 MW in July 2002.

Its contribution to the day peak ranged from 46 MW in November 2001 to 57 MW in both May and July of 2002.

- 6. As shown in Table 7.5, 57% of total Schedule J kWh consumption occurred during the system on-peak period (7 AM to 9 PM daily), with 12% occurring during the system priority peak period (5 PM to 9 PM, Monday through Friday).
- 7. Hourly load data at the system net-to-system and the sales levels for the average weekday and weekend of each month are presented in Tables 7.7 through 7.9. The net-to-system weekend and weekday loads are graphed in Exhibits 7.1a through 7.1l. The weekday profiles rise to a plateau by 10 AM and lasts until 3 PM. The weekend plateau begins about 11 AM lasts until 3 PM. Both weekday and weekend profiles show an evening plateau from 7 PM to 10PM. From 7 AM through 6 PM the average weekday load was about 30% higher than the average weekend load.

Table 7.1

SUMMARY OF MONTHLY LOAD STATISTICS AT THE SALES LEVEL

Schedule J: General Service Demand

	[go y rigga o a k	-Asimaliya	9-47-5-06	Average p	er custome	r standa i i	army solu	The state of the s						
			%1	kWh		kw r	emand at Ti	me of	Maximum		Load Factor Based on	Load Factor Based on		Idence F	
Month_	Sample _Size	kWh	On Peak	Off Peak	Class Peak Date - Hour	CLASS PEAK	SYS PM PEAK	TEM AM PEAK	Non-coincident Demand	Diversity Factor	Coincident Demand	Non-coincident Demand	Class Peak	System Peak	Day Peak
Α	В	С	D	Ė	F	G	н	1	J	K = (J/G)	L	M	N=(G/J)	O=(H/J)	P=(VJ)
Aug-01	112	19,160	68%	32%	08/24-9:00	47	27	38	61	132%	55%	42%	76%	45%	61%
Sep-01	112	18,164	69%	31%	09/20-11:00	47	27	40	62	132%	54%	41%	76%	43%	64%
Oct-01	112	18,491	69%	31%	10/01-13:00	42	25	34	48	116%	60%	51%	86%	52%	71%
Nov-01	112	17,264	69%	31%	11/08-11:00	43	27	33	49	113%	56%	49%	89%	55%	68%
Dec-01	112	17,010	68%	32%	12/05-13:00	42	21	33	49	116%	54%	47%	86%	43%	67%
Jan-02	112	16,307	69%	31%	01/09-11:00	37	23	33	47	127%	59%	47%	79%	48%	69%
Feb-02	112	14,937	69%	31%	02/08-10:00	37	25	36	48	129%	60%	46%	77%	52%	76%
Mar-02	112	17,452	69%	31%	03/06-13:00	41	24	39	51	126%	57%	46%	79%	46%	76%
Apr-02	112	17,761	70%	30%	04/08-11:00	42	30	38	49	117%	59%	50%	85%	61%	78%
May-02		18,461	70%	30%	05/29-12:00	42	23	41	51	120%	59%	49%	84%	46%	81%
Jun-02		17,274	68%	32%	06/05-12:00	41	26	32	49	120%	58%	49%	84%	53%	66%
Jul-02		19,022	68%	32%	07/31-14:00	43	29	41	49	115%	60%	52%	87%	59%	83%
Average	112	17,609	69%	31%		42	26	36	51	122%	58%	47%	82%	50%	72%

Notes:

- 1) kW Demand is 60-minute integrated demand.
- 2) On Peak is from 7 am to 9 pm daily.
- 3) Maximum non-coincident kW demand = average of the individual maximum demands.
- 4) Diversity factor = ratio of the weighted sum of the maximum demand of each member of the class to the maximum coincident demand of the entire class.
- 5) Load factor = ratio (as a %) of kWh / (peak demand x number of hours).
- 6) Coincidence factor = ratio (as a %) of the maximum demand of the class to the weighted sum of the maximum demand of each member of the class.

Table 7.2
HOURLY LOAD (kW) DATA FOR THE DAYS OF THE CLASS PEAKS

Schedule J: General Service Demand 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u>Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	<u> Apr-02</u>	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	29,142	25,791	18,723	23,458	23,978	22,090	21,996	20,818	16,719	22,062	21,284	27,837
2	28,048	23,564	19,925	19,353	22,710	18,206	19,278	18,161	19,029	19,606	17,996	25,859
3	27,502	20,997	17,714	19,601	17,555	19,459	17,821	16,674	18,462	18,884	19,045	22,739
4	27,079	25,633	17,416	25,325	16,863	23,287	20,071	17,252	16,969	18,122	19,355	25,581
5	28,986	22,864	17,729	22,132	22,312	19,815	19,621	18,183	18,942	18,525	19,484	24,354
6	34,235	23,799	24,725	24,296	25,770	22,870	24,114	24,438	23,035	20,968	26,072	26,658
7	40,395	31,675	28,884	32,074	26,582	32,253	28,641	30,761	30,412	25,760	30,607	31,910
8	48,508	43,593	36,418	41,075	37,637	36,890	33,061	35,904	38,213	38,009	37,863	38,473
9	57,320	48,600	42,852	45,175	45,162	40,875	44,395	43,024	45,067	47,798	44,997	45,869
10	56,598	51,271	47,645	46,107	45,288	43,215	47,086	46,039	51,244	50,383	46,739	50,690
11	50,128	58,686	49,857	54,262	44,692	47,106	45,583	48,701	53,907	52,222	47,775	52,262
12	49,489	53,914	48,553	51,948	47,317	45,099	44,148	48,059	51,062	54,681	52,506	51,148
13	49,739	48,900	52,275	47,552	52,285	45,765	47,007	51,227	52,522	53,173	48,380	53,746
14	51,173	49,768	47,912	48,345	48,218	46,024	43,832	48,838	51,314	49,108	48,761	55,084
15	44,975	52,839	46,200	47,907	45,318	44,366	43,349	45,039	48,575	45,754	47,407	49,215
16	43,980	46,178	43,429	46,920	47,559	41,691	38,621	42,229	42,935	42,533	43,800	50,714
17	40,841	37,243	36,841	37,192	38,326	36,265	33,231	36,656	36,875	35,940	35,986	44,341
18	30,009	35,015	30,881	34,061	29,708	33,090	25,692	31,800	30,026	32,451	30,168	36,485
19	27,747	35,820	31,546	41,778	34,976	32,658	25,286	33,116	30,703	32,619	28,914	37,137
20	32,549	33,972	32,533	34,259	33,922	28,781	24,950	31,074	30,501	36,883	33,805	41,223
21	30,498	32,151	34,874	31,552	26,544	28,977	28,181	29,427	31,648	33,631	33,000	38,176
22	26,355	34,087	33,612	33,948	31,464	33,003	30,032	29,186	29,846	31,717	34,859	42,238
23	27,943	29,778	26,845	28,329	26,943	22,956	22,313	26,801	26,057	23,869	25,676	33,823
24	26,171	22,879	24,475	23,842	19,235	21,841	20,918	24,044	22,717	21,289	22,447	28,066
Average	37,892	36,959	33,828	35,854	33,765	32,766	31,218	33,144	34,032	34,416	34,039	38,901

Table 7.3
HOURLY LOAD (kW) DATA PER CUSTOMER FOR THE DAYS OF THE CLASS PEAKS

Schedule J: General Service Demand 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u> Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-</u> 02	<u>Jul-02</u>
1	24	21	15	19	19	17	17	17	13		17	22
2	23	19	16	15	18	14	15	14	15	15	14	20
3	22	17	14	16	14	15	14	13	14	15	15	18
4	22	20	14	20	14	16	16	14	13	14	15	20
5	24	18	14	18	18	16	15	15	15	14	15	19
6	28	19	20	19	21	18	19	20	18	16	20	21
7	33	25	23	25	21	25	22	25	24	20	24	25
8	39	35	29	33	30	29	26	29	30	29	30	30
9	47	37	34	36	36	32	35	34	35	37	35	36
10	46	41	38	37	36	34	37	37	40	39	37	40
11	41	47	40	43	36	37	36	39	42	40	37	41
12	40	43	39	41	38	35	35	38	40	42	41	40
13	40	39	42	38	42	36	37	41	41	41	38	42
14	42	40	38	38	39	36	34	37	40	38	38	43
15	37	42	37	38	36	35	34	36	38	35	37	38
16	36	37	35	37	38	33	30	34	34	33	34	40
17	33	30	29	29	31	29	26	29	29	28	28	35
18	24	28	25	27	24	26	20	25	23	25	24	28
19	23	29	25	33	28	26	20	26	24	25	23	29
20	26	27	26	27	27	23	20	25	24	29	26	32
21	25	26	28	25	21	23	22	23	25	26	26	30
22	21	27	27	27	25	26	24	23	23	25	27	33
23	23	24	21	22	22	18	18	21	20	18	20	26
24	21	18	20	19	15	17	16	19	18	16	18	22
Average	31	29	27	28	27	26	25	26	27	27	27	30

Table 7.4

CLASS CONTRIBUTIONS TO THE SYSTEM AND DAY PEAKS

Schedule J: General Service Demand 60-Minute Integrated kW Demand at the Net-to-System Level, Normalized

	ENVENDING THE	VENDO PER EN		TOWNS I SANCE SON OF
Month	CLASS kW	% OF SYSTEM	CLASS KW	% OF SYSTEM
Aug-01	35,542	22%	52,163	33%
Sep-01	38,012	26%	52,402	34%
Oct-01	36,559	25%	51,325	33%
Nov-01	37,236	24%	46,044	30%
Dec-01	29,130	19%	50,156	33%
Jan-02	30,728	19%	48,408	32%
Feb-02	35,284	23%	50,454	34%
Mar-02	33,143	22%	51,118	35%
Apr-02	39,880	25%	53,078	35%
May-02	31,725	21%	57,267	38%
Jun-02	39,267	29%	48,504	31%
Jul-02	39,738	25%	57,133	35%
Average	35,520	. 23%	51,504	34%

Note: The 12-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32

Table 7.5
CLASS kWh LOAD BY TIME-OF-USE AT THE SALES LEVEL

Schedule J: General Service Demand

	kWh	Load by Time-of-	Use	
Month	Priority Peak	On-peak	Off-peak	Total
Aug-01	2,872,288	13,227,166	7,506,097	23,605,551
Sep-01	2,473,740	13,234,694	7,051,210	22,759,643
Oct-01	2,737,238	13,301,827	7,149,064	23,188,128
Nov-01	2,452,923	12,522,129	6,795,420	21,770,472
Dec-01	2,282,351	12,198,388	6,713,610	21,194,350
Jan-02	2,323,606	11,984,070	6,434,718	20,742,394
Feb-02	2,182,036	10,846,818	5,986,301	19,015,155
Mar-02	2,371,714	12,661,941	6,833,978	21,867,633
Apr-02	2,824,588	12,983,344	6,925,869	22,733,801
May-02	2,930,038	13,726,822	7,231,433	23,888,293
Jun-02	2,411,341	12,517,406	7,147,828	22,076,575
Jul-02	2,999,712	13,528,201	7,858,487	24,386,399
Total	18,043,034	88,248,602	48,418,614	154,710,250
Percent	12%	57%	31%	100%

Note: Normatized sales from sample estimates

Percent I	Wh Load by Tim	e-of-Use	
Priority Peak	On-peak	Off-peak	Total
12%	56%	32%	100%
11%	58%	31%	100%
12%	57%	31%	100%
11%	58%	31%	100%
11%	58%	32%	100%
11%	58%	31%	100%
11%	57%	31%	100%
11%	58%	31%	100%
12%	57%	30%	100%
12%	57%	30%	100%
11%	57%	32%	100%
12%	55%	32%	100%

Time-of-Use Definitions:

Priority Peak: 5 pm - 9 pm, Monday through Friday

On-Peak: 7 am - 5 pm, Monday through Friday 7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

Table 7.6

AVERAGE WEEKDAY - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

<u>Hour</u>	<u>Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	25,233	25,429	24,922	25,181	24,711	23,293	23,267	24,108	24,171	25,022	26,845	27,510
2	24,240	24,815	24,302	23,067	21,555	20,832	20,878	22,290	23,427	22,851	24,379	25,278
3	22,840	22,694	22,389	21,933	19,936	18,794	19,839	20,912	21,757	22,492	24,225	23,449
4	22,248	22,713	22,101	22,515	21,728	19,411	20,580	21,181	21,142	21,257	23,417	24,151
5	23,550	24,173	23,319	22,038	21,296	20,354	20,973	22,174	23,192	22,962	24,587	25,002
6	28,253	25,807	25,591	26,223	23,629	22,042	23,961	25,333	27,185	27,320	28,220	28,604
7	31,347	31,413	30,762	30,441	28,977	26,256	27,929	31,393	31,795	30,273	30,032	31,289
8	40,755	42,643	40,540	38,862	36,468	34,657	35,564	37,584	39,988	40,497	37,674	39,733
9	49,388	49,949	48,362	47,296	43,927	41,453	42,795	43,201	48,647	48,444	45,248	46,415
10	50,659	51,447	49,607	50,512	46,624	43,914	44,569	45,417	50,395	51,666	48,164	49,084
11	50,260	52,710	50,810	49,294	46,592	44,645	45,588	46,668	51,054	52,143	48,906	48,994
12	48,653	51,562	49,958	48,565	46,236	45,119	45,191	46,252	49,469	51,525	48,644	48,158
13	48,049	50,634	50,105	49,789	47,420	44,945	45,389	46,582	50,573	51,355	48,841	49,461
14	49,394	51,394	50,023	49,582	47,256	45,122	45,600	47,195	51,443	51,302	47,293	50,946
15	47,516	50,345	49,605	47,104	44,596	44,522	44,480	46,457	50,101	50,332	47,692	50,103
16	44,386	45,705	45,444	45,576	42,072	42,247	41,605	43,023	44,768	44,979	43,363	45,668
17	40,861	41,819	40,267	40,465	37,297	35,822	36,721	38,446	40,256	41,395	39,705	42,175
18	32,558	33,124	32,555	33,421	31,308	29,148	30,054	30,967	32,712	34,167	33,341	34,374
19	33,959	34,312	33,940	32,777	30,889	28,981	29,397	32,661	33,130	34,204	32,432	34,290
20	36,183	35,454	34,720	34,446	31,579	30,519	31,069	34,550	35,586	37,557	35,871	38,469
21	36,288	35,474	34,379	33,316	30,122	30,385	32,804	33,960	34,913	36,922	34,854	37,016
22	35,949	35,096	34,450	33,286	31,065	31,481	32,147	33,981	34,712	36,096	35,316	37,375
23	30,575	30,609	30,388	29,698	28,989	28,005	26,702	28,648	29,713	30,104	29,356	31,482
24	27,250	27,812	27,419	27,400	26,156	24,488	24,871	26,106	26,893	27,634	28,358	28,589
Average	36,683	37,380	36,498	35,949	33,768	32,351	32,999	34,545	36,543	37,187	36,115	37,401

Table 7.7

AVERAGE WEEKDAY - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	<u> Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	22,144	22,084	21,344	21,577	21,380	20,743	20,718	20,807	21,568	22,087	23,318	24,577
2	21,291	21,759	21,082	19,583	18,448	18,339	18,301	18,885	20,305	19,957	20,849	22,352
3	20,033	19,407	18,860	18,617	17,008	16,251	17,671	17,791	18,914	19,622	20,566	20,289
4	19,834	19,861	18,998	19,563	19,271	17,219	18,207	18,164	18,760	19,185	20,815	22,064
5	21,453	21,739	20,609	19,925	19,306	18,628	19,193	19,246	20,858	20,036	21,041	22,062
6	27,112	24,964	24,461	24,583	22,798	21,053	22,258	23,963	25,708	25,013	25,614	26,040
7	30,360	29,722	28,344	28,602	27,068	25,139	25,651	28,551	29,902	28,921	29,210	30,407
В	38,192	41,881	37,873	35,855	33,874	33,170	33,062	35,446	37,891	37,250	35,465	36,745
9	45,529	47,454	44,433	42,765	39,404	38,688	40,330	41,119	44,999	45,680	42,241	43,176
10	46,043	48,477	45,652	46,489	42,499	41,287	42,019	43,523	47,082	49,069	43,891	45,396
11	45,584	50,313	46,854	45,897	42,318	41,597	43,263	45,597	47,945	50,036	44,683	45,332
12	44,125	48,678	45,683	44,868	41,745	42,232	42,346	44,217	46,572	48,931	45,127	44,543
13	44,246	48,311	45,962	46,229	43,973	42,760	43,007	44,796	48,137	49,006	45,091	46,180
14	45,061	49,016	45,730	45,404	43,302	41,846	42,140	44,923	48,486	48,097	43,292	47,000
15	43,400	47,910	45,093	42,876	39,966	40,757	41,096	44,004	46,615	46,820	43,466	45,909
16	40,849	43,182	41,974	41,745	39,162	39,242	38,213	41,331	42,535	43,396	40,761	43,626
17	37,753	38,447	37,038	36,714	34,675	33,361	33,329	35,329	36,543	37,011	34,716	38,080
18	30,859	31,790	30,207	30,487	29,100	27,741	27,596	29,638	30,307	31,167	29,593	31,368
19	31,852	32,953	31,572	30,987	29,096	27,632	27,720	30,742	31,599	32,518	31,048	33,329
20	33,979	33,303	31,828	31,533	28,487	27,624	29,106	32,649	33,808	35,429	33,643	36,662
21	33,668	32,150	30,813	29,639	27,434	27,651	30,421	31,798	32,677	34,068	32,628	34,991
22	33,340	32,387	31,236	30,194	28,709	29,499	30,943	32,237	32,963	33,935	33,088	36,202
23	26,968	26,901	26,383	25,714	24,906	24,659	23,648	25,497	26,370	26,237	25,860	28,813
24	23,688	23,784	23,458	23,205	22,127	21,214	21,613	22,549	23,563	23,639	24,035	25,368
Average	33,649	34,853	33,145	32,627	30,669	29,930	30,494	32,200	33,921	34,463	32,918	34,605

Table 7.8

AVERAGE WEEKEND - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

<u>Hour</u>	<u> Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	25,772	24,997	24,647	26,167	24,431	22,137	23,178	23,789	23,885	25,041	25,820	26,813
2	24,938	25,225	25,883	23,263	22,346	21,422	21,519	22,188	22,860	23,311	23,402	25,455
3	22,624	22,741	24,133	21,793	21,441	19,271	20,270	21,117	21,728	22,912	23,819	23,958
4	23,267	22,075	21,576	22,587	21,297	19,347	19,941	20,521	20,704	21,132	22,151	23,621
5	25,120	23,228	23,573	22,469	20,798	19,061	21,050	20,984	21,118	21,906	23,180	24,237
6	24,737	23,623	24,107	22,553	21,800	20,003	20,969	21,344	21,793	23,587	24,523	25,292
7	25,930	25,254	24,633	24,625	24,118	20,748	22,071	24,080	22,687	23,560	24,889	26,026
8	29,134	28,331	27,497	27,668	25,116	24,174	23,996	26,779	26,083	26,375	27,553	29,210
9	31,398	29,984	32,126	30,585	29,094	27,218	26,777	29,775	29,491	30,016	31,537	31,495
10	33,467	31,828	34,605	32,596	32,517	30,374	29,475	32,175	32,168	32,657	33,379	35,232
11	35,581	33,471	34,897	32,571	30,904	30,426	30,198	31,751	33,241	34,502	32,962	34,663
12	38,177	33,338	35,301	33,515	31,992	31,481	30,936	32,690	32,566	34,735	34,446	36,129
13	34,018	34,345	36,403	34,633	33,613	33,149	29,805	32,195	31,489	34,676	34,716	38,590
14	34,992	34,166	35,598	34,008	33,288	31,929	29,970	32,286	32,058	33,602	33,464	39,393
15	34,555	33,274	33,353	31,945	29,458	30,710	29,204	32,270	31,421	34,025	34,419	36,097
16	33,041	31,309	32,245	32,346	30,169	29,658	30,039	30,710	29,703	30,233	32,087	33,729
17	31,933	32,412	31,708	29,504	29,411	27,516	28,197	28,931	30,432	29,754	31,240	32,864
18	28,715	27,126	26,960	27,142	25,799	24,239	25,512	25,741	27,397	28,857	29,968	29,100
19	30,649	28,278	29,809	29,132	27,964	25,690	26,122	27,877	28,533	30,570	30,044	30,921
20	31,378	31,382	32,137	28,550	29,915	27,027	27,943	31,574	32,510	33,148	33,653	36,291
21	31,906	31,979	29,980	27,978	30,028	27,339	29,249	32,228	31,204	33,456	34,925	35,528
22	31,515	31,693	30,441	29,997	29,030	28,235	29,512	31,650	29,734	31,406	34,170	35,818
23	29,014	28,617	28,592	26,791	26,522	25,212	24,836	26,744	25,959	26,601	27,749	30,722
24	25,271	25,860	26,351	25,544	24,826	23,498	23,124	24,549	23,998	25,318	27,012	26,112
Average	29,797	28,939	29,440	28,249	27,328	25,828	25,996	27,664	27,615	28,808	29,630	31,137

Table 7.9

AVERAGE WEEKEND - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	<u> Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	22,645	21,675	20,805	22,492	21,052	19,566	20,414	20,619	20,858	22,145	22,527	23,705
2	<u>22,</u> 214	22,019	22,430	19,949	19,158	18,982	18,723	18,915	19,514	20,192	20,066	22,437
3	20,063	19,298	20,383	18,304	18,579	16,870	18,069	17,951	18,369	19,990	20,322	20,698
4	20,905	19,105	18,357	19,973	18,882	17,033	17,794	17,609	18,079	18,964	19,865	21,401
5	23,508	20,861	20,617	19,736	18,328	17,518	19,227	18,610	18,698	19,545	20,421	21,811
6	22,854	21,391	21,823	21,217	20,526	19,148	19,384	20,121	20,585	21,325	22,595	22,824
7	23,222	22,599	21,993	22,871	22,557	19,916	20,524	21,315	21,144	22,312	23,210	24,357
8	26,931	26,220	25,259	25,704	23,175	22,493	22,595	24,240	24,269	24,581	25,577	26,805
9	29,102	27,800	29,783	28,032	25,893	25,033	24,331	26,356	27,296	28,360	28,954	29,373
10	30,449	29,362	31,528	30,260	28,977	27,578	25,858	29,027	28,906	30,121	29,635	31,874
11	32,792	31,246	32,052	30,010	27,960	28,063	26,904	29,934	30,773	31,090	29,803	32,129
12	33,113	30,009	31,931	31,268	28,409	28,899	27,799	30,385	30,200	32,300	31,784	32,421
13	31,001	30,647	33,414	32,033	31,552	30,442	27,098	29,900	29,137	32,141	31,345	34,516
14	31,161	30,970	32,189	30,781	30,803	29,175	26,986	30,511	29,371	30,814	29,960	35,645
15	31,214	29,454	29,654	28,777	26,990	27,613	26,750	29,154	29,317	30,947	31,013	32,217
16	30,484	28,566	28,978	29,417	27,856	27,077	27,470	28,183	27,666	28,645	30,369	31,537
17	29,676	29,559	29,256	27,160	28,077	26,437	26,376	26,071	27,435	26,690	27,521	29,241
18	27,435	25,914	25,187	24,599	23,535	23,322	24,117	24,156	25,458	26,111	27,505	26,273
19	27,519	25,869	27,026	26,999	25,084	23,942	24,272	25,023	26,674	28,368	28,302	29,216
20	28,108	28,318	28,379	25,166	25,689	24,256	25,094	28,138	29,399	30,825	30,990	33,630
21	27,678	28,336	26,856	24,322	26,007	24,704	27,629	28,634	28,300	31,265	31,923	32,509
22	28,495	27,899	26,778	26,911	25,521	26,239	27,880	28,790	27,704	29,873	30,855	34,758
23	25,985	24,754	24,815	23,247	22,749	21,565	21,970	23,440	23,183	23,513	23,949	27,429
24	22,239	22,369	22,445	21,713	21,118	19,871	20,508	21,617	20,591	22,308	23,855	22,654
Average	27,033	26,010	26,331	25,456	24,520	23,573	23,657	24,946	25,122	26,351	26,764	28,311

Exhibit 7.1 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

August 2001

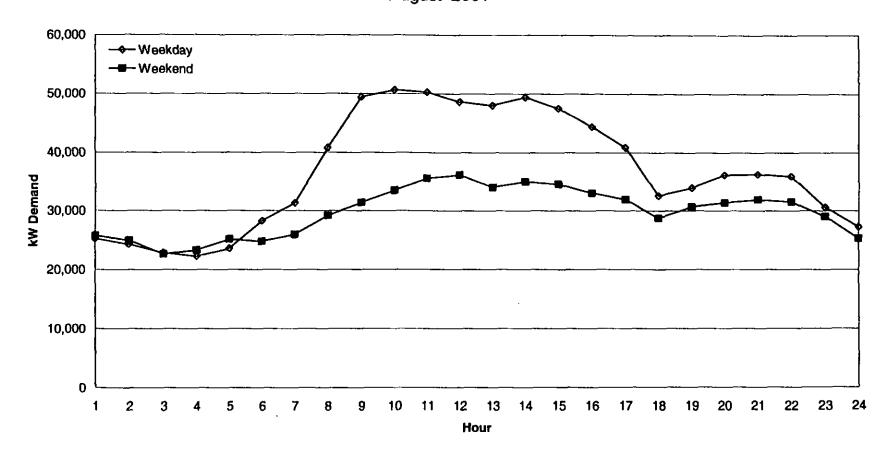


Exhibit 7.1 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

September 2001

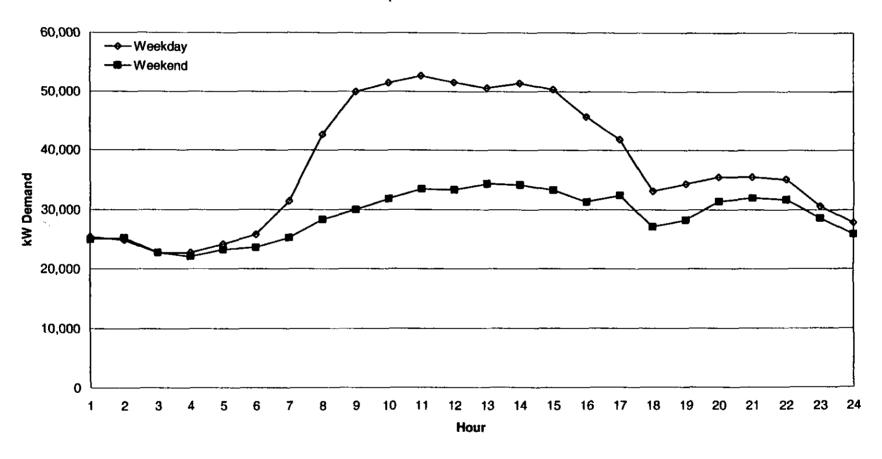


Exhibit 7.1 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

October 2001

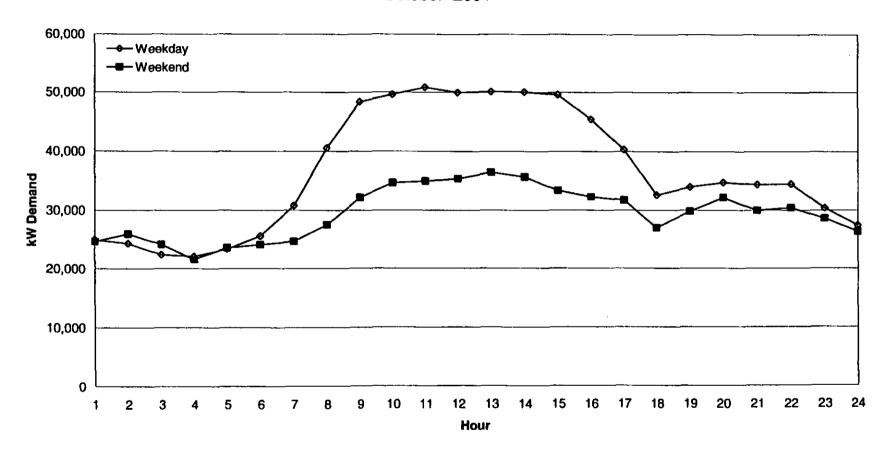


Exhibit 7.1 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

November 2001

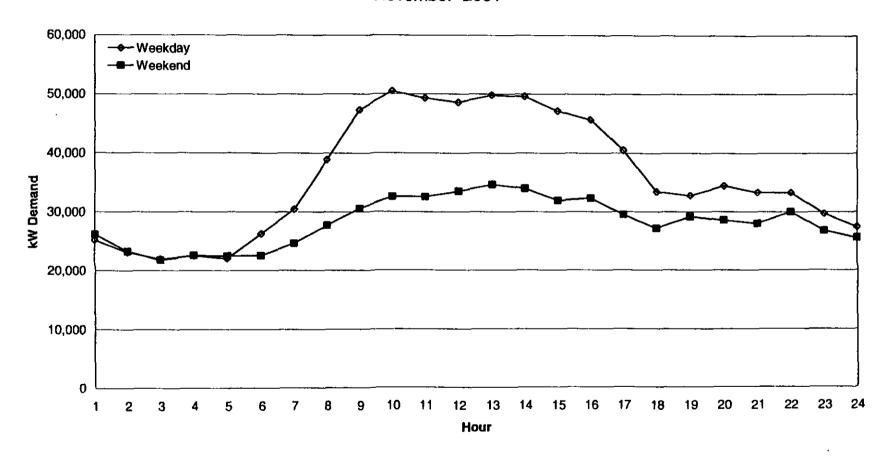


Exhibit 7.1 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

December 2001

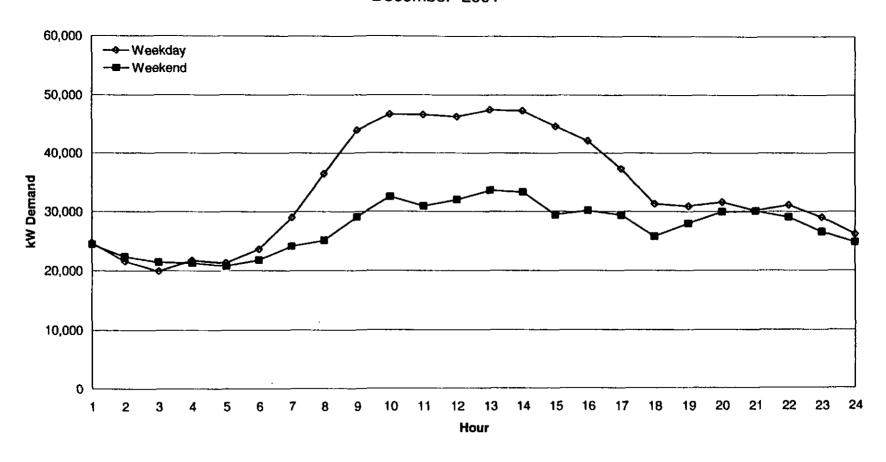


Exhibit 7.1 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

January 2002

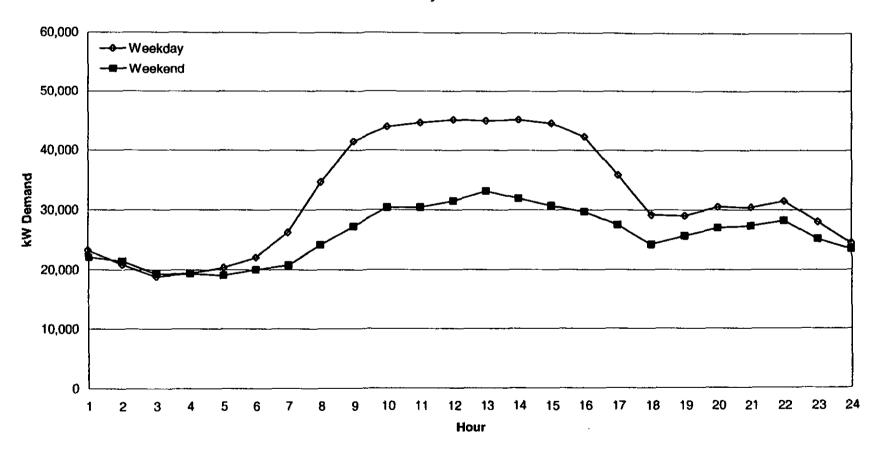


Exhibit 7.1 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

February 2002

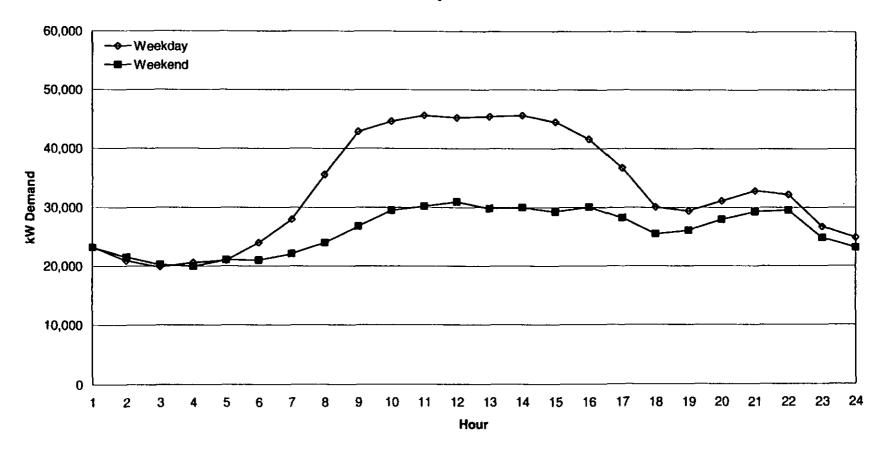


Exhibit 7.1 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

March 2002

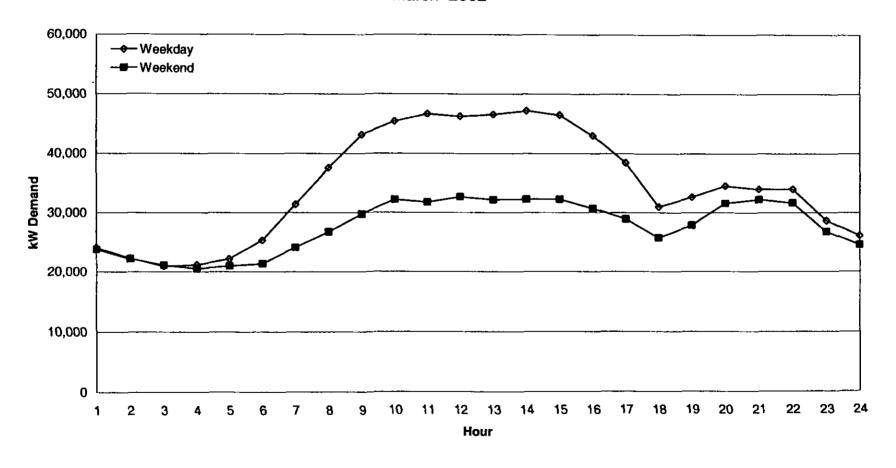


Exhibit 7.1 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

April 2002

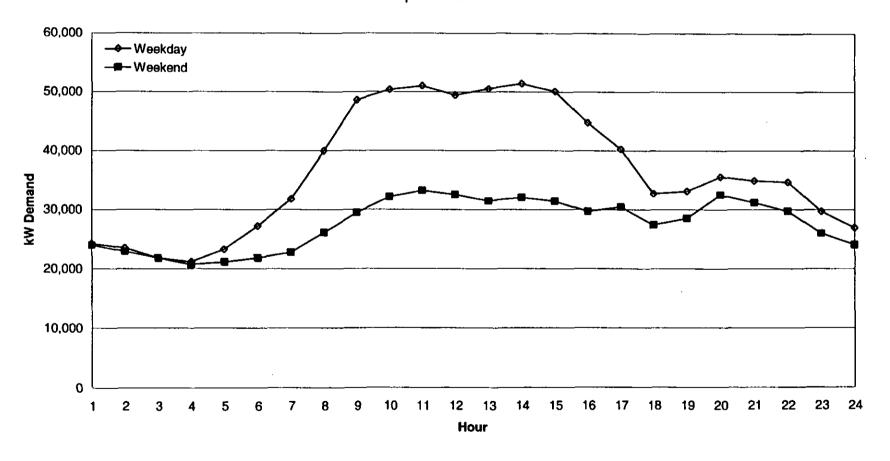


Exhibit 7.1 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

May 2002

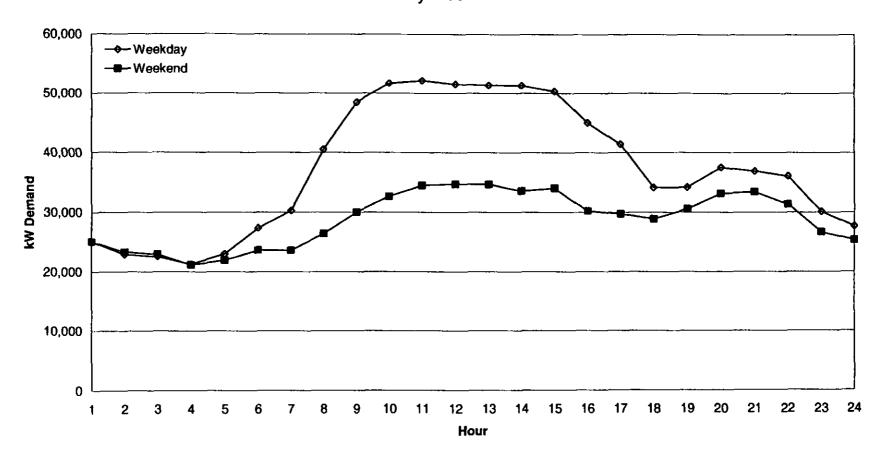


Exhibit 7.1 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

June 2002

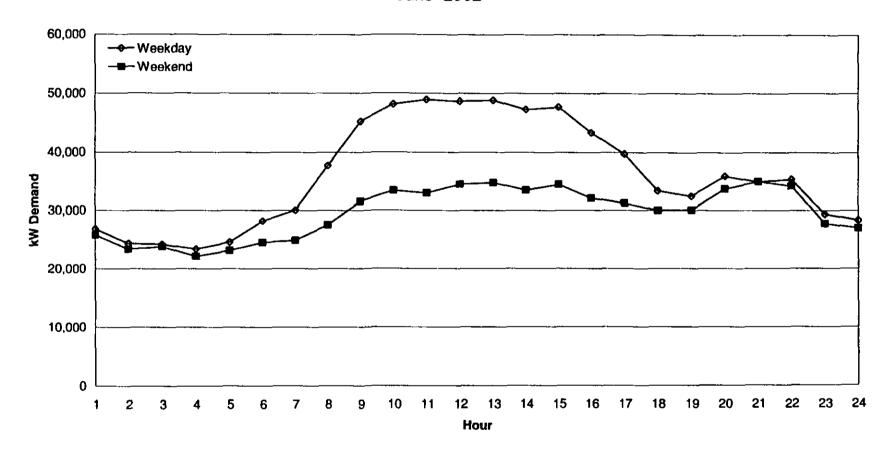
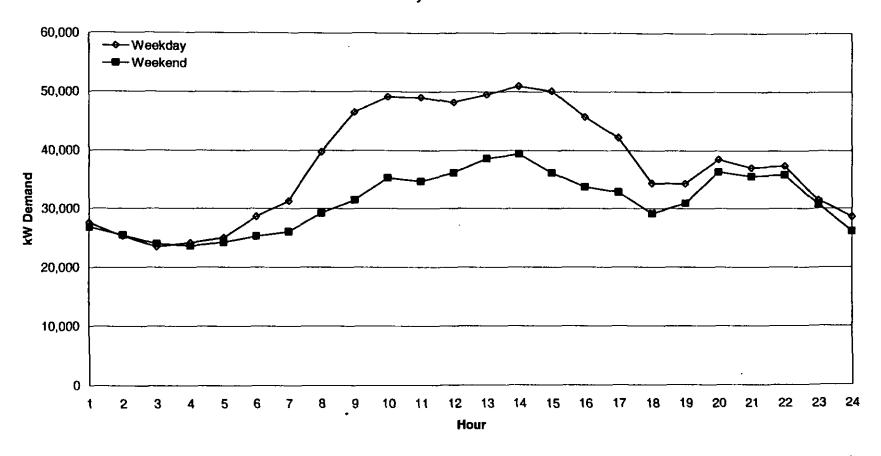


Exhibit 7.1 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule J: General Service Demand

July 2002



8. SCHEDULE H: COMMERCIAL COOKING AND HEATING SERVICE

Schedule H is the third-smallest class in the system. From August 2001 through July 2002 it contained an average of 360 customers, including 91 customers with demand meters (Schedule K). Schedule H contained less than 1% of all customers and accounted for less than 3% of total sales, with an average consumption of 1,979 MWh per month, or 5,503 kWh per customer.

The Schedule H load data revealed these patterns and characteristics:

- 1. During the study period, Schedule H's average monthly consumption ranged from a low of 4,426 kWh in February 2002 to a high of 6,110 kWh in August 2001.
 - The average consumption for the Schedule H sample was 5,468 kWh per month, 0.6% lower than the average for the population (cf. Table 1.10).
- 2. Table 8.1 summarizes the monthly Schedule H load statistics per customer normalized to the sales level. Table 8.1 also shows the non-coincident and coincident demands of the Schedule H sample.

The non-coincident demand is a customer's highest demand during a calendar month. The class non-coincident demand is the total non-coincident demand of all the customers in the class.

The coincident demand of a customer is the demand which a customer puts on the system at a specified time, either the system peak, day peak or class peak. The class coincident demand is the total demand of all customers in the class at the specified time.

The diversity factor represents the extent to which the peak demand of each individual customer in the class occurs simultaneously. It is the ratio of the maximum non-coincident demand per customer to the coincident demand per customer at the class peak, expressed as a percent.

The Schedule H sample's average diversity factor was 131%. The average non-coincident demand per customer was 18.1 kW; the average coincident demand per customer at the class peak of 13.8 kW. The maximum non-coincident demand was highest in September 2001; the maximum coincident demand was highest in June 2002.

3. The sample's monthly load factor during the study period ranged from 39% to 44%, with an average of 42%.

- 4. Schedule H's monthly class peaks occurred between noon and 4 PM. The hourly loads on the day of the class peak in each month are reported in Tables 8.2 (total class) and 8.3 (average per customer).
- 5. Table 8.4 summarizes the class contribution to the system and day peaks normalized to the net-to-system generation level. To extrapolate the demand from the sales level to the net-to-system generation, the sample-based estimates for each class of sales at the peak hour were added, and the sum was normalized to the actual system or day peak for each month.

Schedule H contributed an average of 2% to the monthly system evening peaks and 3% to the monthly day peaks.

The contribution to the system evening peak was 3 MW, except in September and October 2001, when it was 4 MW.

The contribution to the day peak ranged from 4 MW in November 2001 and March 2002 to 6 MW in August and October 2001.

- 6. As shown in Table 8.5, 63% of total Schedule H kWh consumption occurred during the system on-peak period (7 AM to 9 PM daily), with 12% occurring during the system priority peak period (5 PM to 9 PM, Monday through Friday).
- 7. Hourly load data at the system net-to-system and the sales levels for the average weekday and weekend of each month are presented in Tables 8.7 through 8.9. The net-to-system weekend and weekday loads are graphed in Exhibits 8.1a through 8.1l. The weekday profiles generally show a fast rise from 7 AM to a peak between noon and 3 PM afternoon, and a smooth decline from 3 or 4 PM to midnight. The weekend profiles peak by noon and slowly decline from 3 PM. From 7 AM through 8 PM the average weekday load was about 23% higher than the average weekend load.

Table 8.1

SUMMARY OF MONTHLY LOAD STATISTICS AT THE SALES LEVEL

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

※ A Participation (主義) Prof. (Market Average per customer を 1 中の日本の日本の日本の本本を表しています。 まった。

			• 1	kWh		LW F	emand at Ti	ma of	Maximum		Load Factor Based on	Load Factor Based on		ildence F at Time of	
Month	Sample Size	kWh	On Peak	Off Peak	Class Peak Date - Hour	CLASS PEAK	SYS	TEM AM PEAK	Non-coincident	Diversity Factor	Coincident Demand	Non-coincident Demand	Class Peak	System Peak	
A	В	С	D	E	F	G	н	1	J	K = (J/G)	L	M	N=(G/J)	O=(H/J)	P=(I/J)
Aug-01	52	6,110	75%	25%	08/27-12:00	14	8	14	19	131%	57%	44%	76%	42%	72%
Sep-01	52	5,920	74%	26%	09/25-14:00	14	9	14	19	131%	57%	43%	76%	50%	73%
Oct-01	52	5,881	75%	25%	10/01-16:00	14	10	13	18	132%	57%	43%	76%	52%	71%
Nov-01	52	5,411	74%	26%	11/06-14:00	14	8	11	18	133%	56%	42%	75%	47%	60%
Dec-01	52	5,313	74%	26%	12/28-15:00	13	7	11	18	137%	55%	40%	73%	41%	60%
Jan-02	52	5,070	74%	26%	01/07-14:00	13	8	12	18	133%	52%	39%	75%	45%	71%
Feb-02	52	4,526	74%	26%	02/05-14:00	13	7	12	17	136%	52%	39%	74%	41%	68%
Mar-02	52	5,072	75%	25%	03/07-14:00	13	7	11	17	134%	53%	40%	75%	39%	65%
Apr-02	52	5,406	75%	25%	04/10-14:00	14	7	13	18	132%	55%	42%	76%	38%	73%
May-02		5.597	74%	26%	05/30-13:00	14	8	12	18	130%	55%	42%	77%	46%	67%
Jun-02		5,829	75%	25%	06/03-14:00	15	8	13	19	125%	53%	43%	80%	42%	70%
Jul-02		5,904	75%	25%	07/30-14:00	15	8	13	18	122%	54%	44%	82%	45%	71%
Average	52	5,503	74%	26%		14	8	12	18	131%	55%	42%	76%	44%	68%

Notes:

- 1) kW Demand is 60-minute integrated demand.
- 2) On Peak is from 7 am to 9 pm dally.
- 3) Maximum non-coincident kW demand = average of the individual maximum demands.
- 4) Oliversity factor = ratio of the weighted sum of the maximum demand of each member of the class to the maximum coincident demand of the entire class.
- 5) Load factor = ratio (as a %) of kWh / (peak demand x number of hours).
- 6) Coincidence factor = ratio (as a %) of the maximum demand of the class to the weighted sum of the maximum demand of each member of the class.

Table 8.2
HOURLY LOAD (kW) DATA FOR THE DAYS OF THE CLASS PEAKS

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	<u>Mar-02</u>	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	1,638	1,726	1,411	1,461	1.482	1,326	1,305	1,234	1,489	1,557	1,476	1,654
2	1,560	1,632	1,350	1,415	1,415	1,281	1,314	1,219	1,455	1,493	1,454	1,566
3	1,540	1,553	1,302	1,387	1,350	1,261	1,258	1,148	1,403	1,471	1,425	1,535
4	1,559	1,617	1,329	1,424	1,344	1,252	1,290	1,186	1,434	1,455	1,436	1,587
5	1,688	1,778	1,425	1,459	1,375	1,355	1,386	1,277	1,534	1,547	1,520	1,759
6	2,105	2,173	1,865	1,914	1,771	1,709	1,744	1,602	1,875	1,874	1,998	2,037
7	2,513	2,473	2,242	2,183	1,998	2,067	1,953	2,030	2,260	2,333	2,498	2,415
8	3,517	3,275	3,168	2,937	2,580	2,773	2,370	2,372	3,035	2,955	3,252	3,253
9	4,384	4,147	4,112	3,467	3,526	3,541	2,878	3,383	4,025	4,027	4,321	4,240
10	4,826	4,648	4,746	3,997	4,225	4,035	3,674	3,891	4,887	4,551	4,784	4,682
71	5,021	4,939	4,668	4,349	4,311	4,383	3,932	4,003	4,798	4,673	4,848	4,846
12	5,288	5,039	4,799	4,657	4,432	4,491	4,223	4,496	4,746	4,773	5,189	4,926
13	5,108	5,026	4,782	4,811	4,354	4,655	4,491	4,462	4,797	4,873	5,193	5,041
14	5,274	5,175	4,832	4,918	4,693	4,772	4,613	4,588	4,689	4,648	5,387	5,245
15	5,092	5,150	4,906	4,833	4,737	4,665	4,444	4,456	4,711	4,482	5,331	4,973
16	5,127	5,025	5,035	4,759	4,595	4,720	4,252	4,313	4,646	4,523	5,035	4,803
17	4,747	4,908	4,481	4,344	4,355	4,375	3,755	3,925	4,263	4,370	4,772	4,678
18	4,114	4,342	3,880	3,797	3,724	3,475	3,191	3,187	3,553	3,817	4,053	3,943
19	3,269	3,369	3,462	3,024	3,066	2,856	2,709	2,802	2,975	2,897	3,241	3,070
50	2,914	2,921	2,877	2,597	2,580	2,516	2,360	2,594	2,463	2,655	2,793	2,741
21	2,686	2,645	2,432	2,432	2,371	2,147	2,139	2,275	2,545	2,436	2,668	2,489
22	2,413	2,393	2,244	2,194	2,144	1,888	1,915	1,983	2,144	2,205	2,240	2,311
23	2,009	2,097	1,932	1,911	1,815	1,687	1,610	1,626	1,836	1,997	1,965	2,019
24	1,842	1,898	1,687	1,645	1,641	1,465	1,393	1,401	1,533	1,761	1,698	1,725
Average	3,343	3,331	3,124	2,996	2,912	2,862	2,675	2,727	3,054	3,057	3,274	3,231

Table 8.3

HOURLY LOAD (kW) DATA PER CUSTOMER FOR THE DAYS OF THE CLASS PEAKS

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	Aug-01	Sep-01	Oct-01	<u>Nov-01</u>	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	4.45	4.83	3.90	4.01	4.09	3.66	3.64	3.45	4.16	4.36	4.17	4,67
2	4.24	4.57	3.73	3.89	3.91	3.54	3.66	3,40	4.06	4.18	4.11	4.42
3	4.18	4.35	3.60	3.81	3.73	3.46	3.51	3.21	3.92	4.12	4.03	4.34
4	4.24	4.53	3.67	3.91	3.71	3.46	3.59	3.31	4.01	4.08	4.06	4.48
5	4.59	4.98	3.94	4.01	3.80	3.74	3.86	3.57	4.28	4.33	4.29	4.97
6	5.72	6.09	5.15	5.26	4.89	4.72	4.86	4.48	5.24	5.25	5.64	5.75
7	6.83	6.93	6.19	6.00	5.52	5.71	5.44	5.67	6.31	6.54	7.08	6.82
8	9.56	9.17	8.74	8.07	7.13	7.66	6.60	6.63	8.48	8.28	9.19	9.19
9	11.91	11.62	11.36	9.52	9.74	9.78	8.02	9.45	11.24	11.28	12.21	11.98
10	13.12	13.02	13.11	10.98	11.67	11.15	10.23	10.87	13.65	12.75	13.51	13.23
11	13.64	13.83	12.90	11.95	11.91	12.11	10.95	11.18	13.40	13.09	13.70	13.69
12	14.37	14.12	13.26	12.80	12.24	12.41	11.78	12.56	13.2 6	13.37	14.66	13.92
13	13.88	14.08	13.21	13.22	12.03	12.86	12.51	12.46	13.40	13.65	14.67	14.24
14	14.33	14.50	13.35	13.51	12.96	13.18	12.85	12.82	13.66	13.02	15.22	14.82
15	13.84	14.43	13.55	13.28	13.09	12.89	12.38	12.45	13.16	12.55	15.06	14.05
16	13.93	14.08	13.91	13.07	12.69	13.04	11.84	12.05	12.98	12.67	14.22	13.57
17	12.90	13.75	12.38	11.94	12.03	12.09	10.46	10.96	11.91	12.24	13.48	13.22
18	11.18	12.16	10.72	10.43	10.29	9.60	8.89	8,90	9.92	10.69	11.45	11.14
19	8.88	9.44	9.56	8.31	8.47	7.89	7.55	7.83	8.31	8.11	9.16	8.67
20	7.92	8.18	7.95	7.13	7.13	6.95	6.57	7,25	6.88	7.44	7.89	7.74
21	7.30	7.41	6.72	6.68	6.55	5.93	5.96	6.35	7.11	6.82	7.54	7.03
22	6.56	6.70	6.20	6.03	5.92	5.22	5.33	5,54	5.99	6.18	6.33	6.53
23	5.46	5.87	5.34	5.25	5.01	4.66	4.48	4,54	5.13	5.59	5.55	5.70
24	5.00	5.32	4.66	4.52	4.53	4.05	3.88	3.91	4.28	4.93	4.80	4.87
Average	9.08	9.33	8.63	8.23	8.04	7.91	7.45	7.62	8.53	8.56	9.25	9.13

Table 8.4
CLASS CONTRIBUTIONS TO THE SYSTEM AND DAY PEAKS

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service 60-Minute Integrated kW Demand at the Net-to-System Level, Normalized

	EIMEIKAYEMBEH	WENING SEVENINEW	WIND SERVED IN	DANGELENIOS ASSEN
<u>Month</u>	CLASS kW	% OF SYSTEM	CLASS kW	% OF SYSTEM
Aug-01	3,068	2%	5,647	4%
Sep-01	3,815	2%	5,234	3%
Oct-01	4,012	2%	5,698	4%
Nov-01	3,345	2%	4,335	3%
Dec-01	2,999	2%	4,774	3%
Jan-02	3,064	2%	5,258	4%
Feb-02	2,817	2%	4,676	3%
Mar-02	2,644	2%	4,123	3%
Apr-02	2,554	2%	5,134	3%
May-02	3,043	2%	4,581	3%
Jun-02	3,330	2%	5,490	4%
Jul-02	3,032	2%	5,008	3%
Average	3,144	2%	4,996	3%

Note: The 12-month instantaneous system peak of 174.1 MW occurred on December 17, 2001 @ 18:32

Table 8.5

CLASS kWh LOAD BY TIME-OF-USE AT THE SALES LEVEL

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

kWh	Load by Time-of-	-Use	
Priority Peak	On-peak	Off-peak	Total
276,528	1,403,047	569,031	2,248,606
237,693	1,332,864	542,861	2,113,417
262,996	1,328,844	536,952	2,128,793
228,587	1,234,153	506,748	1,969,488
220,331	1,203,625	499,257	1,923,212
222,181	1,144,399	468,875	1,835,456
200;901	1,002,838	421,114	1,624,853
197,789	1,155,251	462,648	1,815,688
246,973	1,197,706	490,497	1,935,176
249,560	1,237,882	510,829	1,998,271
228,548	1,312,308	522,531	2,063,387
254,786	1,303,622	531,495	2,089,903
1,600,739	8,354,006	3,407,989	13,362,734
12%	63%	26%	100%
	Priority Peak 276,528 237,693 262,996 228,587 220,331 222,181 200;901 197,789 246,973 249,560 228,548 254,786 1,600,739	Priority Peak On-peak 276,528 1,403,047 237,693 1,332,864 262,996 1,328,844 228,587 1,234,153 220,331 1,203,625 222,181 1,144,399 200;901 1,002,838 197,789 1,155,251 246,973 1,197,706 249,560 1,237,882 228,548 1,312,308 254,786 1,303,622 1,600,739 8,354,006	276,528 1,403,047 569,031 237,693 1,332,864 542,861 262,996 1,328,844 536,952 228,587 1,234,153 506,748 220,331 1,203,625 499,257 222,181 1,144,399 468,875 200;901 1,002,838 421,114 197,789 1,155,251 462,648 246,973 1,197,706 490,497 249,560 1,237,882 510,829 228,548 1,312,308 522,531 254,786 1,303,622 531,495 1,600,739 8,354,006 3,407,989

Note: Normalized sales from sample estimates

Percent I	12% 62% 25% 11% 63% 26%							
Priority Peak	On-peak	Off-peak	Total					
12%	62%	25%	100%					
11%	63%	26%	100%					
12%	62%	25%	100%					
12%	63%	26%	100%					
11%	63%	26%	100%					
12%	62%	26%	100%					
12%	62%	26%	100%					
11%	64%	25%	100%					
13%	62%	25%	100%					
12%	62%	26%	100%					
11%	64%	25%	100%					
12%	62%	25%	100%					

Priority Peak: 5 pm - 9 pm, Monday through Friday

Time-of-Use Definitions:

On-Peak: 7 am - 5 pm, Monday through Friday 7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

Table 8.6

AVERAGE WEEKDAY - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service 60-Minute Integrated kW Demand

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	<u>Mar-02</u>	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	1,815	1,844	1,803	1,720	1,626	1,499	1,447	1,514	1,588	1,637	1,753	1,681
2	1,761	1,780	1,710	1,702	1,605	1,477	1,434	1,469	1,610	1,629	1,742	1,643
3	1,708	1,766	1,713	1,650	1,570	1,465	1,365	1,414	1,541	1,578	1,705	1,643
4	1,714	1,752	1,690	1,641	1,521	1,435	1,382	1,411	1,543	1,549	1,640	1,610
5	1,790	1,810	1,741	1,661	1,558	1,464	1,439	1,501	1,597	1,653	1,812	1,826
6	2,096	2,158	2,057	2,045	1,910	1,811	1,824	1,769	1,932	1,998	2,164	2,128
7	2,521	2,536	2,455	2,371	2,267	2,106	2,121	2,204	2,383	2,357	2,488	2,428
8	3,532	3,221	3,240	3,153	2,918	2,637	2,466	2,522	2,991	3,099	3,326	3,243
9	4,447	4,249	4,154	4,005	3,765	3,346	3,081	3,233	3,902	3,871	4,361	4,253
10	5,086	4,869	4,733	4,514	4,277	3,839	3,650	3,725	4,357	4,375	4,964	4,730
11	5,264	5,001	4,887	4,622	4,493	4,134	3,837	3,861	4,463	4,443	5,085	4,822
12	5,431	5,176	5,085	4,782	4,691	4,272	4,069	4,101	4,532	4,553	5,112	4,943
13	5,329	5,147	5,080	4,777	4,631	4,279	4,075	4,168	4,516	4,574	5,150	4,952
14	5,427	5,184	5,145	4,926	4,755	4,491	4,278	4,323	4,644	4,655	5,246	5,082
15	5,376	5,122	5,169	4,952	4,863	4,525	4,267	4,337	4,621	4,624	5,220	5,041
16	5,245	5,081	5,001	4,804	4,533	4,385	4,246	4,111	4,483	4,410	4,958	4,739
17	4,838	4,884	4,593	4,454	4,159	4,010	3,917	3,893	4,306	4,390	4,938	4,662
18	4,088	4,020	3,944	3,824	3,587	3,389	3,379	3,259	3,721	3,785	4,165	3,972
19	3,421	3,359	3,347	3,144	3,040	2,911	2,895	2,865	3,034	3,028	3,195	3,020
20	3,066	3,055	3,000	2,857	2,816	2,665	2,668	2,568	2,707	2,800	2,964	2,792
21	2,793	2,820	2,712	2,645	2,501	2,381	2,417	2,315	2,471	2,568	2,664	2,497
22	2,512	2,501	2,420	2,371	2,216	2,076	2,033	2,028	2,179	2,187	2,294	2,203
23	2,284	2,288	2,214	2,159	2,083	1,918	1,906	1,866	2,045	2,092	2,194	2,025
24	2,063	2,074	1,970	1,939	1,893	1,704	1,649	1,647	1,810	1,886	1,996	1,868
Average	3,484	3,404	3,328	3,197	3,053	2,843	2,744	2,754	3,041	3,073	3,381	3,242

Table 8.7

AVERAGE WEEKDAY - NORMALIZED AT THE SALES LEVEL

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service 60-Minute Integrated kW Demand

<u>Hour</u>	<u> Aug-01</u>	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	<u> Jan-02</u>	Feb-02	<u>Маг-02</u>	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	1,593	1,601	1,544	1,474	1,407	1,335	1,289	1,306	1,417	1,445	1,523	1,502
2	1,547	1,561	1,483	1,445	1,374	1,300	1,257	1,244	1,395	1,423	1,490	1,453
3	1,498	1,510	1,443	1,401	1,340	1,267	1,215	1,203	1,339	1,377	1,447	1,422
4	1,528	1,532	1,453	1,426	1,349	1,273	1,223	1,210	1,369	1,398	1,458	1,471
5	1,631	1,628	1,539	1,502	1,412	1,340	1,317	1,303	1,436	1,442	1,551	1,611
6	2,012	2,087	1,967	1,917	1,843	1,730	1,695	1,674	1,827	1,829	1,965	1,937
7	2,442	2,399	2,262	2,228	2,118	2,016	1,948	2,004	2,241	2,251	2,420	2,360
8	3,310	3,163	3,027	2,909	2,710	2,524	2,293	2,379	2,834	2,850	3,131	2,999
9	4,100	4,037	3,816	3,621	3,377	3,123	2,904	3,078	3,609	3,650	4,071	3,956
10	4,622	4,588	4,356	4,154	3,899	3,609	3,441	3,570	4,071	4,155	4,524	4,375
11	4,774	4,774	4,506	4,303	4,081	3,852	3,642	3,772	4,191	4,264	4,646	4,462
12	4,926	4,886	4,650	4,418	4,235	3,999	3,813	3,921	4,266	4,324	4,742	4,572
13	4,907	4,911	4,660	4,436	4,294	4,071	3,862	4,008	4,299	4,365	4,754	4,623
14	4,951	4,944	4,704	4,511	4,357	4,165	3,953	4,115	4,377	4,364	4,802	4,689
15	4,910	4,874	4,699	4,508	4,358	4,143	3,943	4,108	4,299	4,302	4,758	4,619
16	4,827	4,800	4,619	4,400	4,220	4,074	3,900	3,950	4,260	4,254	4,661	4,528
17	4,470	4,491	4,225	4,041	3,866	3,735	3,555	3,578	3,909	3,925	4,318	4,210
18	3,675	3,859	3,660	3,489	3,334	3,225	3,102	3,119	3,447	3,453	3,697	3,625
19	3,209	3,226	3,114	2,972	2,864	2,776	2,730	2,697	2,894	2,879	3,059	2,935
20	2,879	2,870	2,750	2,615	2,541	2,412	2,499	2,426	2,572	2,642	2,779	2,661
21	2,607	2,556	2,431	2,353	2,278	2,167	2,242	2,168	2,313	2,370	2,494	2,360
22	2,330	2,308	2,194	2,150	2,048	1,945	1,957	1,924	2,069	2,056	2,149	2,134
23	2,015	2,011	1,922	1,869	1,789	1,689	1,688	1,660	1,815	1,823	1,933	1,853
24	1,794	1,774	1,686	1,642	1,601	1,476	1,433	1,422	1,586	1,614	1,692	1,658
Average	3,198	3,183	3,029	2,908	2,779	2,635	2,537	2,577	2,827	2,852	3,086	3,001

Table 8.8

AVERAGE WEEKEND - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service 60-Minute Integrated kW Demand

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	1,917	1,857	1,859	1,803	1,738	1,537	1,572	1,557	1,681	1,653	1,798	1,695
2	1,831	1,773	1,742	1,721	1,638	1,459	1,499	1,515	1,688	1,647	1,782	1,649
3	1,756	1,770	1,715	1,686	1,546	1,419	1,407	1,464	1,609	1,557	1,712	1,637
4	1,759	1,739	1,706	1,593	1,525	1,409	1,419	1,450	1,554	1,530	1,619	1,563
5	1,730	1,736	1,698	1,666	1,545	1,382	1,433	1,455	1,563	1,581	1,697	1,647
6	2,097	2,127	2,045	1,906	1,801	1,646	1,774	1,717	1,793	1,918	2,007	1,981
7	2,432	2,325	2,311	2,089	1,963	1,781	1,907	2,015	1,995	2,009	2,170	2,095
8	2,658	2,554	2,481	2,311	2,141	1,973	2,001	2,212	2,293	2,338	2,491	2,365
9	3,153	3,049	3,021	2,875	2,662	2,398	2,486	2,762	2,876	2,765	3,137	2,822
10	3,735	3,633	3,620	3,414	3,214	2,983	3,159	3,247	3,452	3,212	3,768	3,392
11	3,836	3,731	3,741	3,610	3,333	3,173	3,318	3,371	3,438	3,429	3,869	3,468
12	3,926	3,898	3,871	3,621	3,547	3,248	3,415	3,495	3,477	3,397	3,759	3,646
13	3,938	3,853	3,760	3,640	3,344	3,250	3,383	3,466	3,448	3,415	3,839	3,599
14	3,970	3,736	3,719	3,673	3,343	3,235	3,348	3,365	3,426	3,349	3,811	3,498
15	3,867	3,768	3,717	3,608	3,237	3,257	3,143	3,417	3,256	3,271	3,671	3,457
16	3,628	3,523	3,534	3,475	3,184	3,135	3,159	3,202	3,204	3,083	3,395	3,200
17	3,417	3,379	3,280	3,260	2,933	2,821	2,963	3,091	3,248	3,160	3,582	3,240
18	3,224	3,002	3,076	3,042	2,850	2,611	2,721	2,795	2,872	2,924	3,248	3,104
19	3,011	2,934	2,870	2,743	2,727	2,457	2,554	2,656	2,651	2,642	2,803	2,664
20	2,914	2,938	2,809	2,764	2,647	2,448	2,556	2,624	2,648	2,554	2,739	2,585
21	2,886	2,757	2,575	2,666	2,488	2,238	2,208	2,424	2,501	2,371	2,623	2,450
22	2,530	2,493	2,364	2,337	2,255	1,988	2,075	2,131	2,175	2,116	2,360	2,129
23	2,244	2,218	2,101	2,094	2,047	1,914	1,945	1,885	2,030	2,031	2,164	2,047
24	2,037	1,975	1,903	1,889	1,834	1,695	1,654	1,669	1,808	1,776	1,902	1,861
Average	2,854	2,782	2,730	2,645	2,481	2,311	2,379	2,458	2,529	2,489	2,748	2,575

Table 8.9

AVERAGE WEEKEND - NORMALIZED AT THE SALES LEVEL

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service 60-Minute Integrated kW Demand

Hour	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	<u> Mar-02</u>	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	1,685	1,610	1,570	1,550	1,498	1,359	1,384	1,349	1,468	1,461	1,568	1,499
2	1,631	1,548	1,509	1,475	1,404	1,293	1,305	1,292	1,441	1,426	1,528	1,453
3	1,557	1,502	1,448	1,416	1,339	1,242	1,254	1,245	1,361	1,358	1,461	1,414
4	1,580	1,505	1,452	1,409	1,352	1,241	1,266	1,244	1,357	1,373	1,452	1,416
5	1,619	1,559	1,485	1,463	1,361	1,270	1,309	1,291	1,384	1,410	1,495	1,482
6	1,937	1,926	1,851	1,793	1,696	1,576	1,640	1,619	1,694	1,734	1,849	1,788
7	2,178	2,080	2,063	1,940	1,836	1,710	1,773	1,784	1,860	1,903	2,024	1,960
В	2,457	2,364	2,279	2,147	1,976	1,836	1,884	2,002	2,134	2,179	2,313	2,171
9	2,922	2,827	2,801	2,635	2,369	2,206	2,259	2,445	2,662	2,612	2,880	2,632
10	3,399	3,351	3,298	3,169	2,864	2,708	2,771	2,929	3,102	2,963	3,346	3,069
11	3,535	3,483	3,436	3,327	3,016	2,927	2,956	3,178	3,183	3,090	3,499	3,214
12	3,593	3,508	3,501	3,379	3,150	2,982	3,068	3,249	3,224	3,159	3,469	3,272
13	3,589	3,438	3,451	3,367	3,139	2,985	3,075	3,219	3,190	3,165	3,466	3,219
14	3,535	3,387	3,363	3,324	3,094	2,956	3,015	3,180	3,139	3,071	3,412	3,165
15	3,494	3,335	3,305	3,250	2,966	2,929	2,879	3,087	3,038	2,975	3,308	3,085
16	3,347	3,214	3,176	3,160	2,940	2,863	2,888	2,939	2,984	2,921	3,213	2,992
17	3,176	3,082	3,026	3,001	2,800	2,710	2,772	2,785	2,928	2,835	3,155	2,883
18	3,080	2,868	2,873	2,757	2,600	2,513	2,572	2,623	2,669	2,645	2,981	2,802
19	2,703	2,684	2,603	2,542	2,446	2,290	2,374	2,384	2,478	2,452	2,640	2,517
19 20	2,610	2,651	2,481	2,436	2,273	2,197	2,295	2,339	2,395	2,375	2,522	2,395
21	2,504	2,443	2,306	2,317	2,155	2,023	2,086	2,154	2,268	2,216	2,397	2,242
22	2,288	2,194	2,080	2,096	1,983	1,847	1,960	1,938	2,026	2,013	2,131	2,066
23	2,009	1,918	1,823	1,817	1,756	1,637	1,721	1,652	1,813	1,796	1,868	1,827
24	1,793	1,708	1,621	1,606	1,560	1,434	1,467	1,469	1,550	1,565	1,680	1,614
Average	2,593	2,508	2,450	2,391	2,232	2,114	2,166	2,225	2,306	2,279	2,486	2,341

Exhibit 8.1 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service August 2001

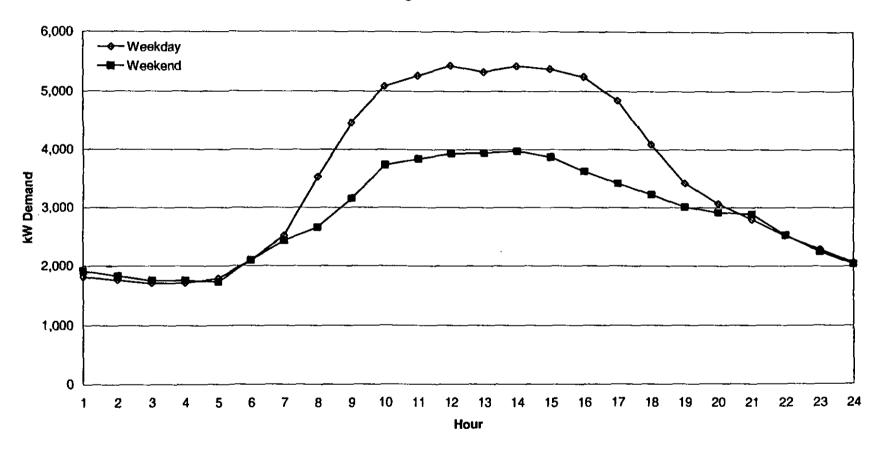


Exhibit 8.1 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level
Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service
September 2001

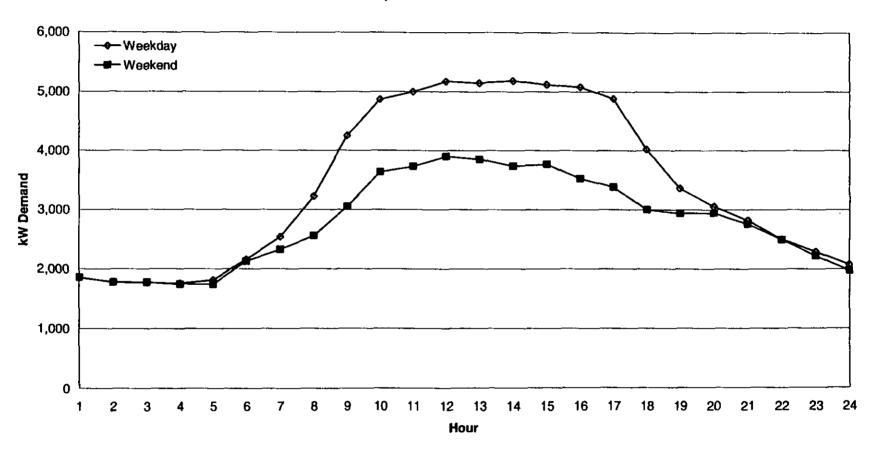


Exhibit 8.1 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

October 2001

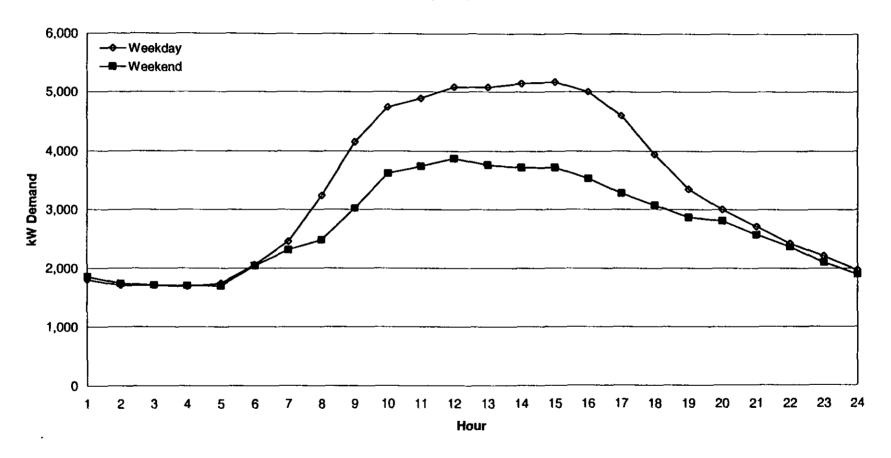


Exhibit 8.1 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service November 2001

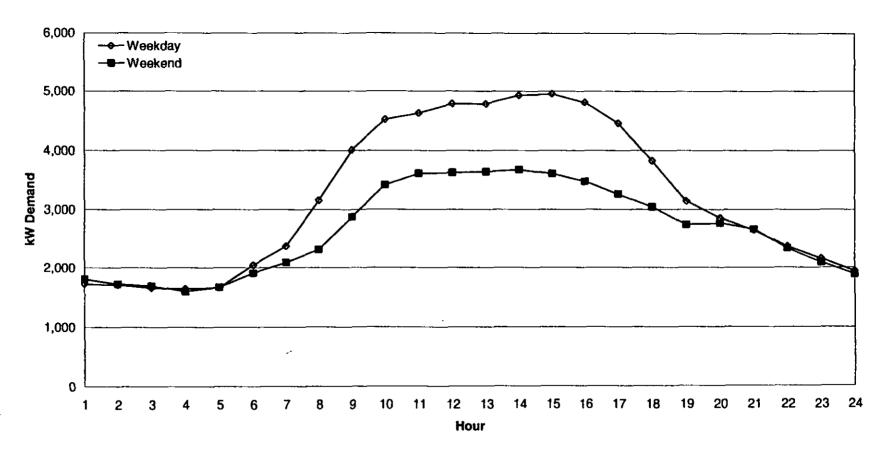


Exhibit 8.1 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

December 2001

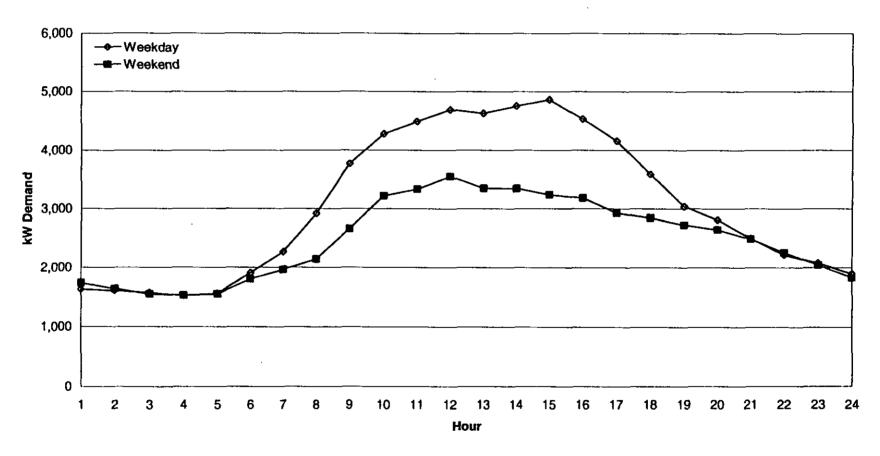


Exhibit 8.1 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service January 2002

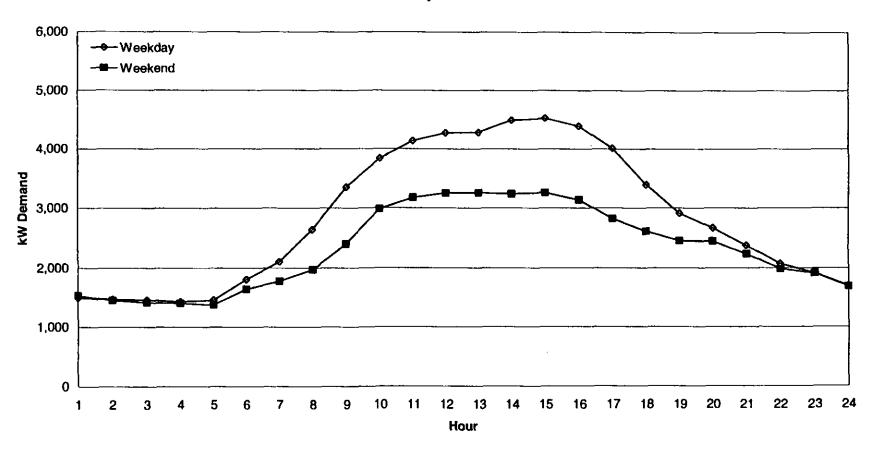


Exhibit 8.1 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service February 2002

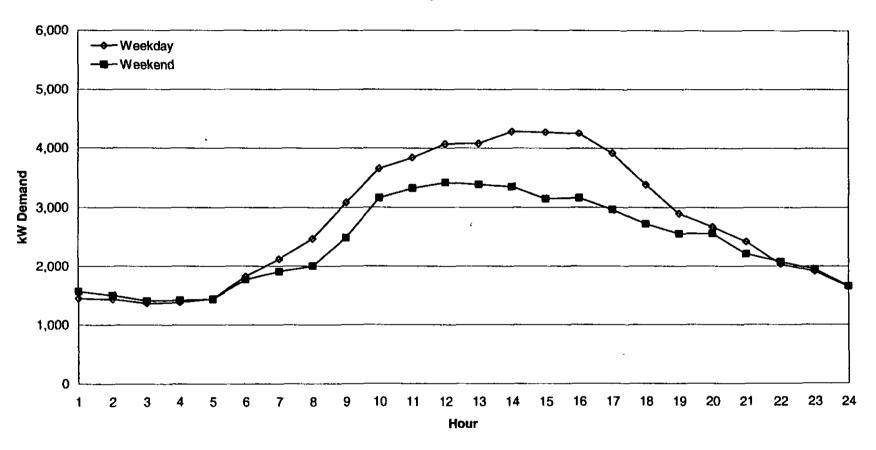


Exhibit 8.1 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service March 2002

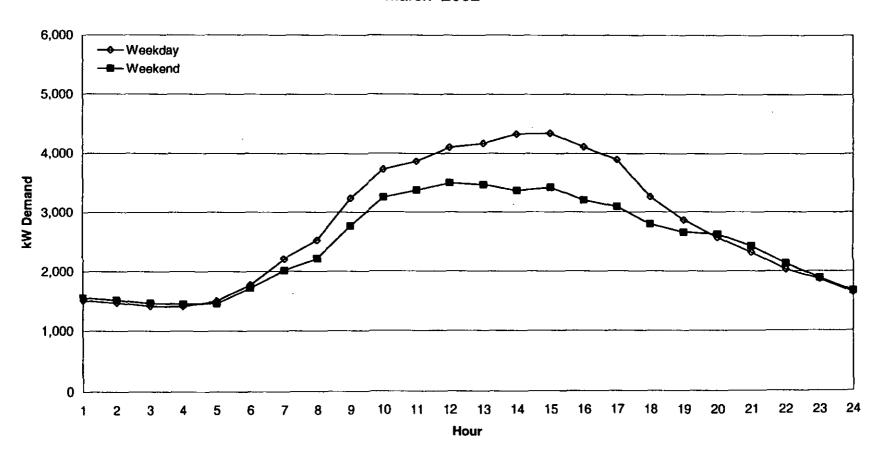


Exhibit 8.1 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service April 2002

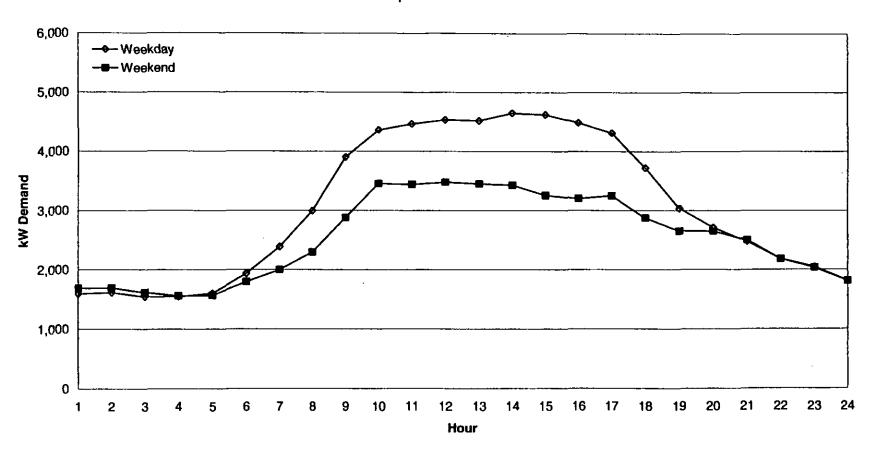


Exhibit 8.1 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service May 2003

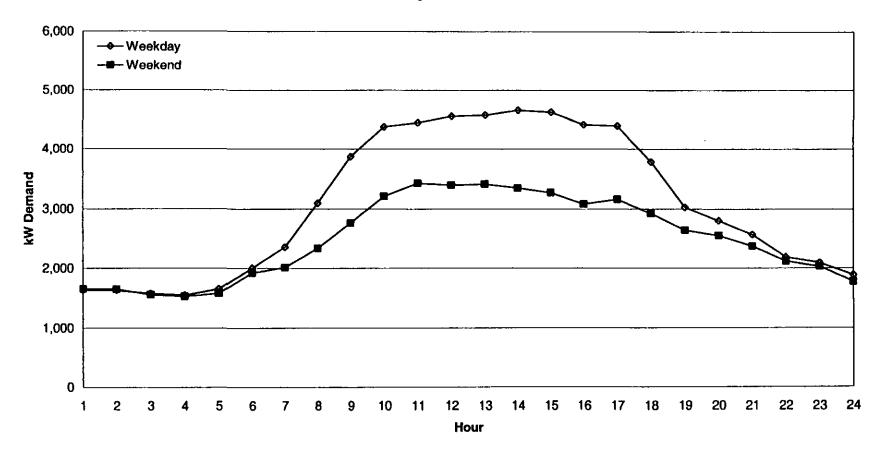


Exhibit 8.1 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

June 2002

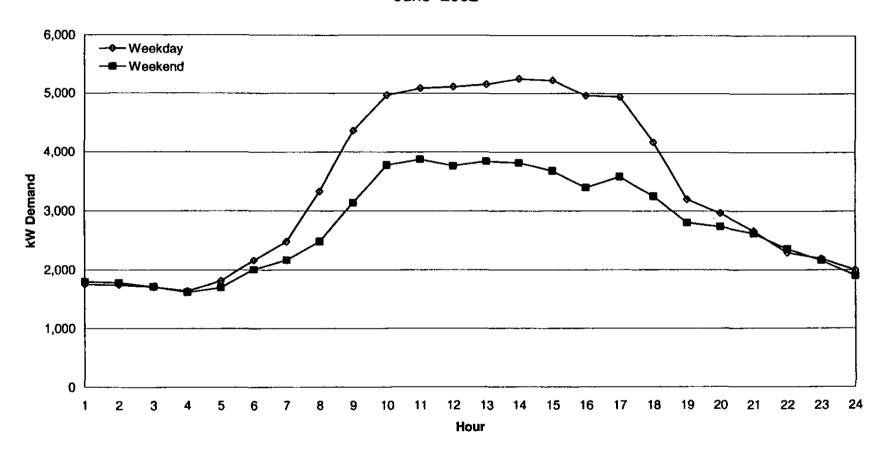
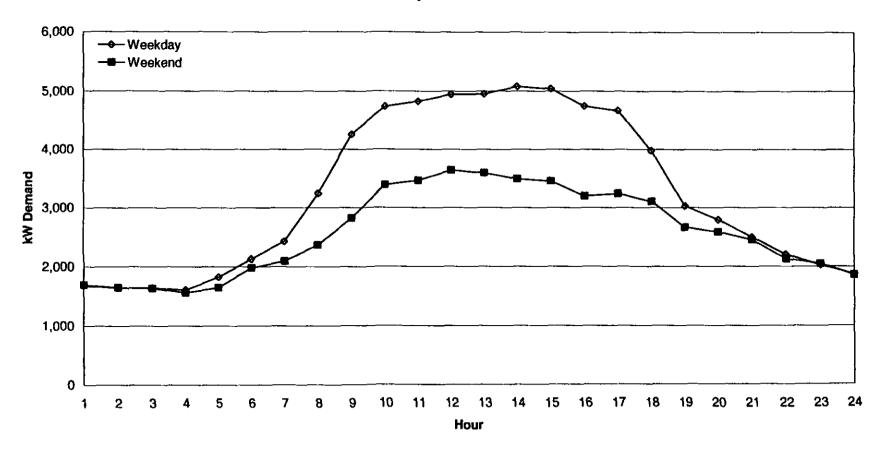


Exhibit 8.1 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule H: Commercial Cooking, Heating, Air Conditioning and Refrigeration Service

July 2002



9. SCHEDULE P: LARGE POWER SERVICE

The Large Power Service class consists of the largest commercial customers on the system. Schedule P is the second-smallest rate class in the HELCO system; from August 2001 through July 2002, it contained an average of 61 customers, 0.1% of the total. But Schedule P accounted for 23% of total energy sales, with an average consumption of 18,355 MWh per month, or 300,488 kWh per customer.

The Schedule P load data revealed these patterns and characteristics:

- 1. From August 2001 through July 2002, Schedule P accounts' average monthly consumption ranged from 263,730 kWh in February 2002 to 345,607 kWh in July 2002.
 - Since all Schedule P accounts were included in the study, their average energy consumption, 300,208 kWh per month, was only 0.1% lower than the recorded amount for the population (cf. Table 1.11). This small difference is due to the fact that the Schedule P billing cycles, the basis for the recorded sales, did not all begin on August 1, 2001 nor end on July 31, 2002.
- 2. Table 9.1 summarizes the monthly Schedule P load statistics per customer, normalized to the sales level. Table 9.1 also shows the non-coincident and coincident demands of the Large Power Service accounts.
 - The non-coincident demand is a customer's highest demand during a calendar month. The class non-coincident demand is the total non-coincident demand of all the customers in the class.

The coincident demand of a customer is the demand which a customer puts on the system at a specified time, either the system peak, day peak or class peak. The class coincident demand is the total demand of all customers in the class at the specified time.

The diversity factor represents the extent to which the peak demand of each individual customer in the class occurs simultaneously. It is the ratio of the maximum non-coincident demand per customer to the coincident demand per customer at the class peak, expressed as a percent.

Schedule P's average diversity factor was 117%. The average non-coincident demand per customer was 580 kW; the average coincident demand per customer at the class peak was 497 kW. Both the maximum coincident demand and the maximum non-coincident demand were highest in July.

3. Schedule P's monthly load factor was fairly steady during the twelve-month study period, ranging from 81% to 84%, with an average of 83%.

- 4. Schedule P's class peak occurred between 11 AM and 2 PM. The hourly loads on the day of the class peak in each month are reported in Tables 9.2 (total class) and 9.3 (average per customer).
- 5. Table 9.4 summarizes the class' contribution to the system and day peaks, normalized to the net-to-system generation level. To extrapolate the demand from the sales level to the net-to-system generation, the sample-based estimates for each class of sales at the peak hour were added, and the sum was normalized to the actual system or day peak for each month.
 - Schedule P's contribution to the system peak, 18%, was lower than its contribution to the day peak, 22%.
 - Its contribution to the system peak ranged from 28 MW in May 2002 to 33 MW in July 2002.
 - Its contribution to the system day peak ranged from 29 MW in March 2002 to 37 MW in October 2001.
- 6. As shown in Table 9.5, 52% of total Schedule P kWh consumption occurred during the system on-peak period (7 AM to 9 PM, daily), with 12% occurring during the system priority peak period (5 PM to 9 PM, Monday through Friday).
- 7. Hourly load data at the system net-to-system and the sales levels for the average weekday and weekend of each month are presented in Tables 9.7 through 9.9. The net-to-system weekend and weekday loads are graphed in Exhibits 9.1a through 9.11. The Schedule P load profiles rise smoothly from 5 AM to noon, decline slightly in the afternoon and reach a second peak between 7 PM and 8 PM. Overall, Schedule P's weekday loads were less than 1% higher than its weekend loads; between 7 PM and 8 PM, however, Schedule P's peak was 3% higher on weekends than on weekdays.

Table 9.1

SUMMARY OF MONTHLY LOAD STATISTICS AT THE SALES LEVEL

Schedule P: Large Power Service

			%	cWh_		kW 5	emand at Ti	me of	Maximum		Load Factor Based on	Load Factor Based on		idence F It Time of	
Month	Sample Size	kWh	On Peak	Off Peak	Class Peak Date - Hour	CLASS PEAK		TEM AM PEAK	Non-coincident Demand	Diversity Factor	Coincident Demand	Non-coincident Demand	Class Peak	System Peak	Day Peak
Α	В	С	D	E	F	G	Н	ŧ	J	K = (J/G)	L'	м	N=(Q/J)	O=(H/J)	P=(l/J
Aug-01	60	326,030	64%	36%	08/17-12:00	521	490	506	608	117%	84%	72%	86%	81%	83%
Sep-01	60	303,481	64%	36%	09/12-11:00	511	450	498	603	118%	82%	70%	85%	75%	83%
Oct-01	60	300,516	64%	36%	10/26-12:00	492	445	492	576	117%	82%	70%	85%	77%	85%
Nov-01	60	287,767	64%	36%	11/08-13:00	482	439	473	566	117%	83%	71%	85%	78%	84%
Dec-01	60	298,956	64%	36%	12/28-12:00	494	431	448	580	117%	81%	69%	85%	74%	77%
Jan-02	60	290,331	64%	36%	01/08-14:00	468	440	464	551	118%	83%	71%	85%	80%	84%
Feb-02	60	263,730	64%	36%	02/19-14:00	474	426	465	555	117%	83%	71%	85%	77%	84%
Mar-02	60	289,033	64%	36%	03/08-14:00	468	416	452	548	117%	83%	71%	85%	76%	83%
Apr-02	60	301,396	64%	36%	04/10-14:00	509	481	504	587	115%	82%	71%	87%	82%	86%
May-02	60	305,159	64%	36%	05/17-12:00	488	435	487	574	117%	84%	72%	85%	76%	85%
Jun-02	60	295,337	64%	36%	06/28-13:00	494	456	481	568	115%	83%	72%	87%	80%	85%
Jul-02	60	345,607	64%	36%	07/01-13:00	558	520	537	644	115%	83%	72%	87%	81%	83%
Average	60	300,612	64%	36%		497	453	484	580	117%	83%	71%	86%	78%	83%

Notes:

- 1) kW Demand is 60-minute integrated demand.
- 2) On Peak is from 7 am to 9 pm daily.
- 3) Maximum non-coincident kW demand = average of the individual maximum demands.
- 4) Diversity factor = ratio of the weighted sum of the maximum demand of each member of the class to the maximum coincident demand of the entire class.
- 5) Load factor = ratio (as a %) of kWh / (peak demand x number of hours).
- 6) Coincidence factor = ratio (as a %) of the maximum demand of the class to the weighted sum of the maximum demand of each member of the class.

Table 9.2 HOURLY LOAD (kW) DATA FOR THE DAYS OF THE CLASS PEAKS

Schedule P: Large Power Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	23,167	21,744	20,941	21,052	20,868	20,973	20,070	19,881	20,952	20,394	21,857	23,446
2	22,252	21,238	20,259	20,536	20,349	20,324	19,778	19,298	20,417	19,885	20,832	23,083
3	22,434	21,292	20,371	19,914	20,154	19,671	19,821	18,953	20,595	19,805	20,687	23,286
4	22,448	21,824	20,604	20,161	20,290	19,504	19,960	19,207	20,567	20,127	20,604	22,986
5	22,520	22,543	21,086	21,509	20,975	20,180	20,959	19,986	21,414	20,711	21,720	23,729
'6	23,722	24,305	22,471	22,741	22,145	22,479	22,626	21,676	23,389	22,604	23,276	25,684
7	24,775	25,494	23,872	24,408	23,431	23,832	24,242	23,466	24,249	24,275	24,368	27,723
8	26,571	27,080	25,528	25,522	24,257	24,393	25,245	24,008	25,859	25,516	25,569	29,326
9	28,383	28,731	27,354	27,169	28,342	25,901	26,932	25,520	27,754	27,164	27,393	31,388
10	30,576	30,110	29,509	28,409	28,056	27,763	28,424	26,860	29,571	28,465	28,861	32,862
11	31,427	31,183	30,525	28,967	29,180	28,311	28,828	27,713	30,463	29,300	29,506	33,254
12	31,766	30,921	30,528	29,109	29,652	28,884	28,224	28,263	30,747	29,796	29,590	33,444
13	31,466	30,890	29,809	29,418	29,408	28,743	29,144	28,357	30,987	29,441	30,157	33,492
14	31,370	30,619	29,273	29,234	29,648	28,990	29,393	28,523	31,038	29,245	29,902	33,427
15	31,717	30,274	28,668	28,923	29,127	28,142	28,875	27,475	30,600	28,923	29,339	33,129
16	31,685	29,927	28,969	29,018	28,908	28,204	28,584	27,483	30,708	28,637	29,411	32,826
17	30,922	29,349	28,460	28,896	28,695	27,767	28,099	27,241	30,304	28,348	29,605	32,710
18	30,582	28,672	28,016	28,102	28,469	27,139	27,907	26,802	29,560	28,049	28,549	31,838
19	30,553	28,704	27,700	27,986	29,030	26,597	27,873	26,752	29,907	27,905	28,825	31,657
20	30,646	27,875	26,636	27,602	28,394	26,060	27,415	26,991	29,367	28,031	28,632	31,749
21	29,694	26,491	25,257	25,412	26,719	25,017	26,396	24,858	28,040	26,225	26,756	30,835
22	28,745	25,791	24,714	24,957	26,298	24,549	25,301	23,778	27,314	25,230	26,306	29,780
23	28,091	24,306	24,017	24,053	24,618	23,246	23,607	22,558	25,587	23,940	25,245	28,024
24	26,490	23,256	21,759	22,626	22,845	21,556	22,074	21,229	24,248	22,112	23,714	25,906
Average	27,999	26,776	25,680	25,655	25,744	24,926	25,449	24,453	26,818	25,589	26,279	29,399

Table 9.3 HOURLY LOAD (kW) DATA PER CUSTOMER FOR THE DAYS OF THE CLASS PEAKS

Schedule P: Large Power Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u> Aug-01</u>	Sep-01	<u>Oct-01</u>	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	<u>Mar-02</u>	Apr-02	May-02	<u> վսո-02</u>	Jul-02
1	380	356	338	345	348	338	324	326	343	334	358	391
2	365	348	327	337	339	328	319	316	335	326	342	385
3	368	349	329	326	336	317	320	311	338	325	339	388
4	368	358	332	331	338	315	322	315	337	330	338	383
5	369	370	340	353	350	325	338	328	351	340	356	395
6	389	398	362	373	369	363	365	355	383	371	382	428
7	406	418	385	400	391	384	391	385	398	398	399	462
B	436	444	412	418	404	393	407	394	424	418	419	489
9	465	471	441	445	439	418	434	418	455	445	449	523
10	501	494	476	466	468	448	458	440	485	467	473	548
11	515	511	492	475	486	457	485	454	499	480	484	554
12	521	507	492	477	494	466	471	463	504	488	485	557
13	516	506	481	482	490	464	470	465	508	483	494	558
14	514	502	472	479	494	468	474	468	509	479	490	557
15	520	496	462	474	485	454	466	450	502	474	481	552
16	519	491	467	476	482	455	461	451	503	469	482	547
17	507	481	459	474	478	448	453	447	497	465	485	545
18	501	470	452	461	474	438	450	439	485	460	468	531
19	501	471	447	459	484	429	450	439	490	457	473	528
20	502	457	430	452	473	420	442	442	481	460	469	529
21	487	434	407	417	445	403	426	408	460	430	439	514
22	471	423	399	409	438	396	408	390	448	414	431	496
23	461	398	387	394	410	375	381	370	419	392	414	467
24	434	381	351	371	381	348	356	348	398	362	389	432
Average	459	439	414	421	429	402	410	401	440	419	431	490

Table 9.4

CLASS CONTRIBUTIONS TO THE SYSTEM AND DAY PEAKS

Schedule P: Large Power Service 60-Minute Integrated kW Demand at the Net-to-System Level, Normalized

	MATE SPECIAL DE	MENINGREPARASA	RESERVATION OF THE PROPERTY OF	TO STATE OF THE PARTY OF THE PA
Month	CLASS KW	% OF SYSTEM	CLASS kW	% OF SYSTEM
Aug-01	31,494	19%	34,711	22%
Sep-01	31,072	19%	32,143	21%
Oct-01	31,974	19%	36,670	24%
Nov-01	29,499	17%	31,704	21%
Dec-01	28,879	17%	33,069	22%
Jan-02	29,296	17%	33,674	23%
Feb-02	29,196	17%	31,503	21%
Mar-02	28,277	17%	28,630	19%
Apr-02	30,461	19%	33,257	22%
May-02	27,711	17%	32,131	21%
Jun-02	32,820	20%	34,287	22%
Jul-02	33,178	20%	35,204	22%
Average	30,321	18%	33,082	22%

Note: The 12-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32

Table 9.5
CLASS kWh LOAD BY TIME-OF-USE AT THE SALES LEVEL

Schedule P: Large Power Service

	kWh	Load by Time-of-	Use	
Month	Priority Peak	On-peak	Off-peak	Total
Aug-01	2,550,543	10,084,729	7,252,565	19,887,837
Sep-01	2,066,917	9,738,056	6,707,340	18,512,314
Oct-01	2,348,687	9,538,293	6,745,039	18,632,020
Nov-01	2,100,761	9,095,932	6,357,072	17,553,765
Dec-01	2,066,735	9,354,093	6,516,560	17,937,388
Jan-02	2,196,859	9,271,233	6,532,443	18,000,536
Feb-02	2,006,252	8,427,704	5,917,291	16,351,247
Mar-02	1,971,159	9,278,976	6,380,850	17,630,985
Apr-02	2,424,683	9,360,208	6,600,270	18,385,161
May-02	2,370,782	9,547,682	6,696,221	18,614,685
Jun-02	2,050,011	9,440,878	6,524,671	18,015,560
Jul-02	2,631,905	10,575,999	7,528,538	20,736,442
Total	15,651,650	65,902,681	46,180,285	127,734,616
Percent	12%	52%	36%	100%

Note:	Normalized	balae from	eamnle	estimates

Percent I	(Wh Load by Tim	e-of-Use	
Priority Peak	On-peak	Off-peak	Total
13%	51%	36%	100%
11%	53%	36%	100%
13%	51%	36%	100%
12%	52%	36%	100%
12%	52%	36%	100%
12%	52%	36%	100%
12%	52%	36%	100%
11%	53%	36%	100%
13%	51%	36%	100%
13%	51%	36%	100%
11%	52%	36%	100%
13%	51%	36%	100%

·	Time-o	f-Use	Defit	ritio	NS:

Priority Peak: 5 pm - 9 pm, Monday through Friday On-Peak: 7 am - 5 pm, Monday through Friday 7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

Table 9.6

AVERAGE WEEKDAY - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Schedule P: Large Power Service 60-Minute Integrated kW Demand

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	Jun-02	<u>Jul-02</u>
1	25,482	24,257	24,021	23,292	22,896	22,455	22,164	22,320	23,031	23,058	23,872	25,617
2	24,335	23,458	23,219	22,931	22,490	22,057	21,902	22,096	22,978	22,609	23,448	25,398
3	24,171	24,088	23,909	22,799	22,269	22,130	21,355	21,727	22,774	22,511	23,212	25,682
4	23,933	23,868	23,552	22,424	21,826	21,606	21,685	21,752	22,486	21,934	22,430	24,563
5	23,900	23,950	23,616	22,512	22,391	21,984	21,969	22,598	23,125	23,534	24,307	26,233
6	24,219	23,959	23,629	23,670	22,771	22,828	23,845	22,537	23,880	24,217	24,578	27,140
7	25,107	25,497	25,699	24,993	25,096	24,567	25,876	25,253	25,560	24,694	24,376	27,057
8	27,614	26,249	26,728	26,410	25,946	25,307	26,343	24,949	26,785	27,496	26,708	30,190
9	30,117	29,290	29,295	28,930	28,678	27,449	27,527	26,198	29,404	28,833	28,821	32,180
10	32,335	30,914	30,603	29,754	29,549	28,690	28,725	27,131	30,660	29,756	30,717	33,894
11	33,234	31,202	31,586	30,166	30,440	29,596	29,138	27,252	31,048	29,868	30,959	34,273
12	33,379	31,524	31,894	30,699	30,832	29,664	29,737	28,223	31,200	30,316	30,709	34,644
13	32,683	31,056	31,543	30,387	29,951	29,162	29,273	28,097	30,886	30,153	30,932	34,363
14	33,052	30,957	31,624	30,869	30,373	29,859	29,934	28,389	31,156	30,608	31,322	34,644
15	33,252	30,937	31,471	30,593	30,580	30,072	29,643	28,351	31,186	30,739	31,408	34,646
16	33,115	31,100	30,789	30,147	29,212	29,523	29,668	27,998	30,262	29,396	30,327	33,055
17	32,542	31,282	30,374	30,106	28,977	29,150	29,784	28,882	31,232	31,214	32,145	34,404
18	30,726	29,014	29,388	29,600	28,449	28,077	29,005	27,357	30,002	29,906	30,854	33,123
19	31,164	29,012	29,518	28,518	28,215	28,110	28,597	27,920	29,342	28,698	28,549	31,121
20	31,248	29,044	29,216	28,760	28,669	28,945	28,349	27,812	29,325	28,950	28,993	31,685
21	30,253	28,460	28,172	27,819	26,851	27,350	27,426	26,702	28,390	28,056	27,760	30,636
22	29,376	27,344	27,075	26,833	25,834	25,822	25,603	25,375	27,303	26,703	27,144	29,315
23	29,794	27,433	26,996	26,686	26,307	26,052	25,958	25,428	27,329	27,005	27,023	29,147
24	28,079	26,665	25,750	25,558	25,169	24,752	24,557	24,423	25,789	25,683	26,163	27,647
Average	29,296	27,940	27,911	27,269	26,824	26,467	26,578	25,782	27,714	27,331	27,781	30,444

Table 9.7

AVERAGE WEEKDAY - NORMALIZED AT THE SALES LEVEL

Schedule P: Large Power Service 60-Minute Integrated kW Demand

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	22,363	21,066	20,573	19,958	19,810	19,997	19,735	19,264	20,550	20,353	20,736	22,886
2	21,375	20,568	20,142	19,468	19,248	19,418	19,198	18,721	19,915	19,746	20,052	22,458
3	21,201	20,599	20,140	19,353	18,998	19,135	19,021	18,484	19,798	19,638	19,706	22,221
4	21,336	20,871	20,246	19,484	19,358	19,166	19,184	18,654	19,953	19,797	19,938	22,440
5	21,772	21,539	20,872	20,354	20,299	20,119	20,105	19,614	20,798	20,535	20,802	23,149
6	23,241	23,176	22,586	22,190	21,970	21,805	21,965	21,318	22,583	22,172	22,309	24,708
7	24,317	24,125	23,679	23,483	23,442	23,522	23,768	22,966	24,038	23,591	23,709	26,295
8	25,878	25,781	24,970	24,367	24,101	24,221	24,490	23,530	25,381	25,291	25,143	27,920
9	27,763	27,827	26,914	26,159	25,725	25,618	25,941	24,936	27,199	27,188	26,905	29,935
10	29,389	29,130	28,347	27,384	26,934	26,973	27,081	26,000	28,644	28,261	27,993	31,347
11	30,141	29,783	29,127	28,088	27,648	27,575	27,653	26,626	29,157	28,661	28,285	31,712
12	30,272	29,760	29,165	28,362	27,837	27,766	27,866	26,980	29,373	28,789	28,488	32,043
13	30,096	29,632	28,935	28,214	27,774	27,744	27,737	27,020	29,398	28,774	28,556	32,083
14	30,152	29,524	28,910	28,268	27,831	27,690	27,663	27,023	29,365	28,696	28,672	31,961
15	30,371	29,441	28,608	27,847	27,405	27,529	27,388	26,854	29,016	28,594	28,624	31,745
16	30,476	29,383	28,439	27,613	27,191	27,423	27,250	26,897	28,752	28,361	28,508	31,577
17	30,067	28,760	27,938	27,315	26,940	27,148	27,032	26,541	28,351	27,908	28,106	31,063
18	29,123	27,846	27,268	27,001	26,442	26,722	26,633	26,182	27,795	27,281	27,386	30,226
19	29,231	27,863	27,458	26,960	26,577	26,802	26,966	26,279	27,986	27,284	27,330	30,249
20	29,345	27,282	26,782	26,327	25,862	26,200	26,559	26,281	27,860	27,310	27,191	30,196
21	28,236	25,794	25,250	24,750	24,455	24,889	25,434	25,003	26,571	25,887	25,988	28,961
22	27,244	25,233	24,549	24,340	23,875	24,196	24,644	24,073	25,928	25,104	25,431	28,395
23	26,279	24,110	23,438	23,106	22,602	22,939	22,988	22,632	24,254	23,537	23,804	26,676
24	24,408	22,803	22,031	21,646	21,293	21,443	21,341	21,095	22,596	21,970	22,174	24,533
Average	26,837	25,912	25,265	24,668	24,317	24,418	24,485	23,874	25,636	25,197	25,243	28,116

Table 9.8

AVERAGE WEEKEND - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Schedule P: Large Power Service 60-Minute Integrated kW Demand

Hour	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	<u>Mar-02</u>	Apr-02	<u>May-02</u>	<u>Jun-02</u>	<u>Jul-02</u>
1"	26,205	24,663	24,563	23,156	22,957	22,657	22,369	22,518	24,111	23,066	23,512	26,078
2	24,780	23,883	23,348	22,515	22,548	21,762	22,024	22,009	23,692	22,893	23,200	25,601
3	24,424	24,379	23,723	22,970	22,129	21,749	21,152	21,838	23,644	22,479	23,089	25,582
4	24,094	24,140	23,658	22,201	21,715	21,642	21,368	21,605	22,818	21,977	22,055	24,531
5	23,540	24,098	24,021	23,201	22,924	21,605	22,051	22,064	23,556	23,089	23,539	25,651
6	25,313	25,277	25,057	23,212	23,051	22,393	23,510	22,409	23,622	24,296	23,849	26,954
7	26,993	26,523	26,372	24,559	24,467	23,805	25,135	25,320	25,404	24,650	24,993	27,514
8	27,551	26,891	26,327	25,117	25,187	24,947	25,159	25,173	26,641	26,321	26,229	29,340
9	29,062	28,335	27,486	26,982	27,477	26,638	27,293	27,120	28,568	27,574	28,169	30,486
10	31,207	30,054	29,353	27,984	28,546	28,138	29,597	27,874	30,777	29,127	30,201	32,617
11	31,383	30,531	29,664	28,862	28,738	28,381	29,658	27,395	30,173	30,253	30,049	32,181
12	31,759	31,718	30,423	28,674	29,440	28,647	29,532	28,070	30,403	29,542	29,690	33,491
13	31,742	31,884	29,951	28,748	27,980	28,606	29,071	28,040	30,418	29,467	30,290	33,475
14	32,474	31,331	30,276	29,456	28,323	28,758	29,384	27,774	31,004	29,714	30,548	33,308
15	32,363	32,063	30,516	29,348	28,680	29,217	28,739	28,877	30,430	30,003	30,293	33,894
16	31,842	31,032	30,217	28,931	28,304	28,762	29,074	28,389	30,480	28,700	28,812	32,280
17	31,342	30,567	29,217	28,502	27,553	27,440	28,519	28,962	31,293	30,055	30,997	33,654
18	30,463	28,909	28,630	29,146	29,051	27,421	28,365	27,782	30,218	29,759	29,699	33,024
19	32,448	30,313	29,692	28,453	29,771	28,444	29,064	29,351	30,016	29,050	28,945	31,705
20	32,708	30,353	29,653	29,038	30,314	28,884	29,797	29,416	30,859	29,082	29,414	32,451
21	32,811	29,303	27,822	28,019	28,724	27,432	27,233	27,859	29,410	27,849	28,552	31,577
22	29,997	28,129	26,930	25,890	26,820	25,501	25,761	25,734	27,280	25,927	27,677	28,482
23	28,817	27,317	26,050	25,286	25,916	26,167	25,595	25,002	26,434	26,167	26,822	29,161
24	27,326	25,693	24,967	24,254	24,493	24,794	23,703	23,232	25,448	24,603	24,257	27,514
Average	29,194	28,224	27,413	26,438	26,463	25,991	26,381	25,992	27,779	26,902	27,287	30,023

Table 9.9

AVERAGE WEEKEND - NORMALIZED AT THE SALES LEVEL

Schedule P: Large Power Service 60-Minute Integrated kW Demand

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	<u>Mar-02</u>	Apr-02	May-02	Jun-02	Jul <u>-02</u>
1	23,026	21,386	20,734	19,904	19,782	20,026	19,702	19,517	21,055	20,399	20,513	23,055
2	22,073	20,847	20,231	19,307	19,331	19,283	19,163	18,763	20,224	19,830	19,893	22,566
3	21,659	20,688	20,037	19,294	19,175	19,039	18,855	18,584	19,989	19,612	19,699	22,098
4	21,648	20,892	20,128	19,631	19,252	19,054	19,067	18,539	19,924	19,723	19,779	22,226
5	22,029	21,643	21,009	20,379	20,202	19,856	20,141	19,567	20,857	20,600	20,736	23,084
6	23,386	22,889	22,684	21,837	21,704	21,437	21,734	21,126	22,313	21,966	21,974	24,324
7	24,174	23,734	23,546	22,809	22,883	22,850	23,373	22,413	23,676	23,345	23,307	25,750
8	25,468	24,888	24,185	23,334	23,240	23,212	23,690	22,786	24,789	24,530	24,349	26,925
9	26,937	26,270	25,481	24,729	24,453	24,500	24,800	24,006	26,442	26,053	25,861	28,432
10	28,393	27,725	26,743	25,978	25,439	25,548	25,966	25,147	27,656	26,865	26,814	29,509
11	28,924	28,501	27,246	26,593	26,001	26,177	26,422	25,827	27,933	27,261	27,169	29,828
12	29,070	28,551	27,518	26,751	26,142	26,297	26,537	26,091	28,194	27,470	27,396	30,054
13	28,927	28,451	27,491	26,589	26,265	26,270	26,431	26,042	28,146	27,313	27,349	29,941
14	28,919	28,400	27,377	26,660	26,208	26,278	26,459	26,246	28,405	27,249	27,349	30,140
15	29,234	28,382	27,131	26,438	26,278	26,271	26,324	26,088	28,392	27,289	27,296	30,251
16	29,378	28,313	27,155	26,311	26,134	26,259	26,588	26,053	28,390	27,192	27,269	30,183
17	29,127	27,877	26,957	26,237	26,304	26,364	26,677	26,099	28,212	26,960	27,306	29,944
18	29,105	27,617	26,747	26,416	26,500	26,383	26,814	26,072	28,080	26,918	27,259	29,815
19	29,134	27,730	26,920	26,369	26,705	26,509	27,006	26,346	28,060	26,958	27,267	29,957
20	29,299	27,391	26,185	25,596	26,032	25,923	26,760	26,215	27,906	27,044	27,086	30,072
21	28,463	25,965	24,923	24,357	24,877	24,788	25,725	24,752	26,673	26,025	26,098	28,894
22	27,123	24,762	23,690	23,226	23,577	23,699	24,336	23,408	25,417	24,661	24,992	27,639
23	25,808	23,630	22,609	21,941	22,230	22,382	22,642	21,913	23,608	23,130	23,149	26,035
24	24,047	22,224	21,266	20,616	20,835	20,966	21,021	20,458	21,835	21,678	21,422	23,870
Average	26,473	25,365	24,500	23,804	23,731	23,724	24,010	23,418	25,257	24,586	24,639	27,275

Exhibit 9.1 a

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

August 2001

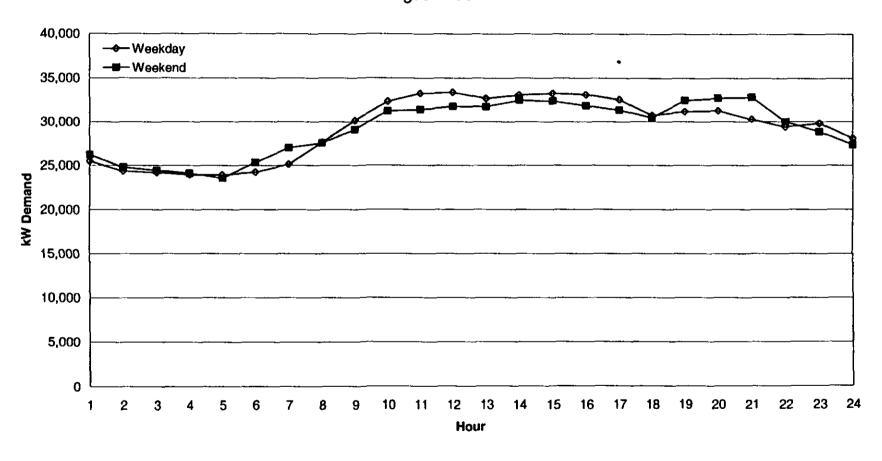


Exhibit 9.1 b

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

September 2001

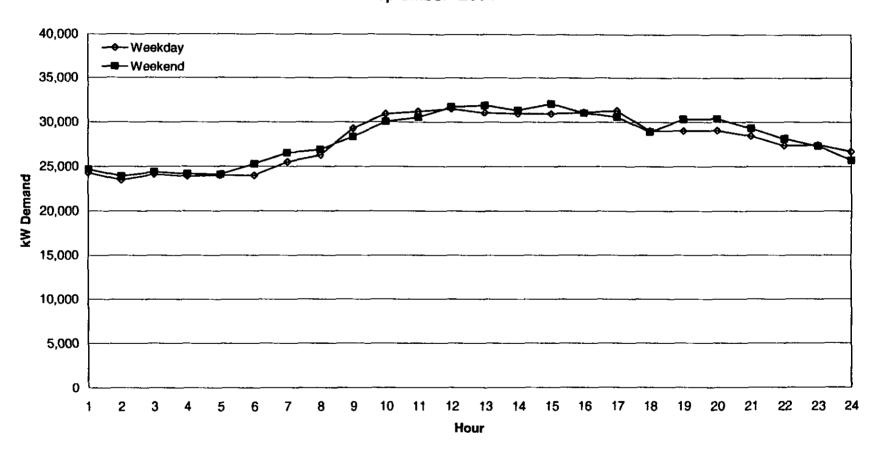


Exhibit 9.1 c

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

October 2001

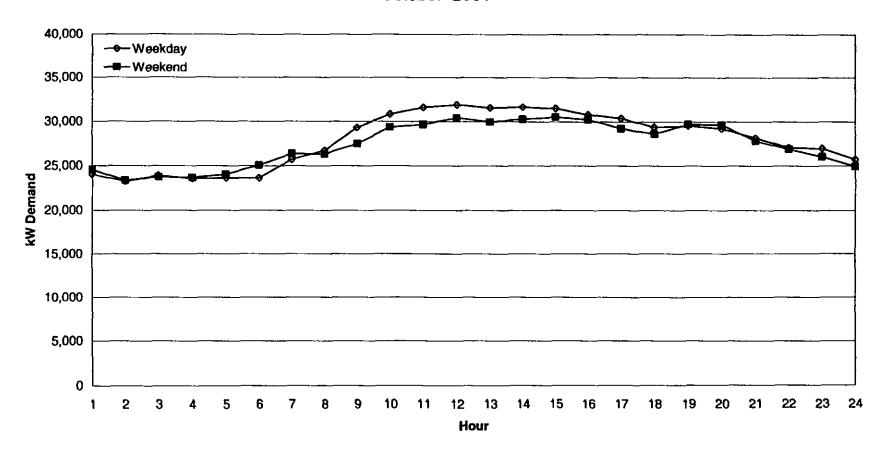


Exhibit 9.1 d

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

November 2001

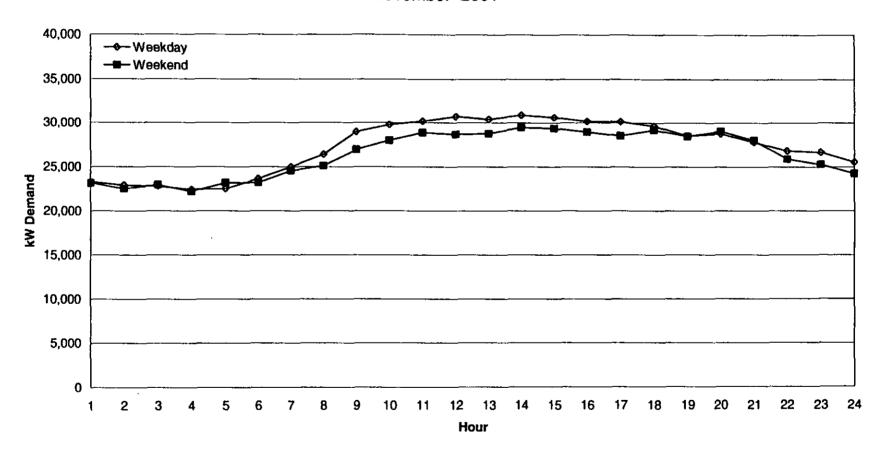


Exhibit 9.1 e

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

December 2001

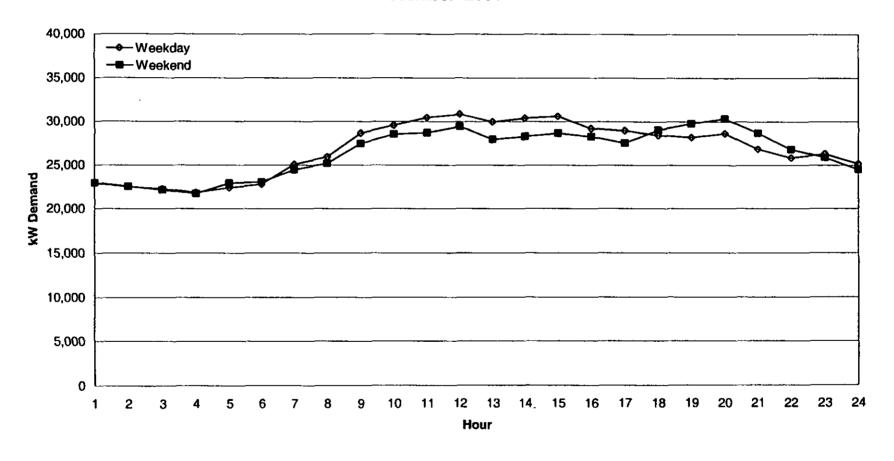


Exhibit 9.1 f

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

January 2002

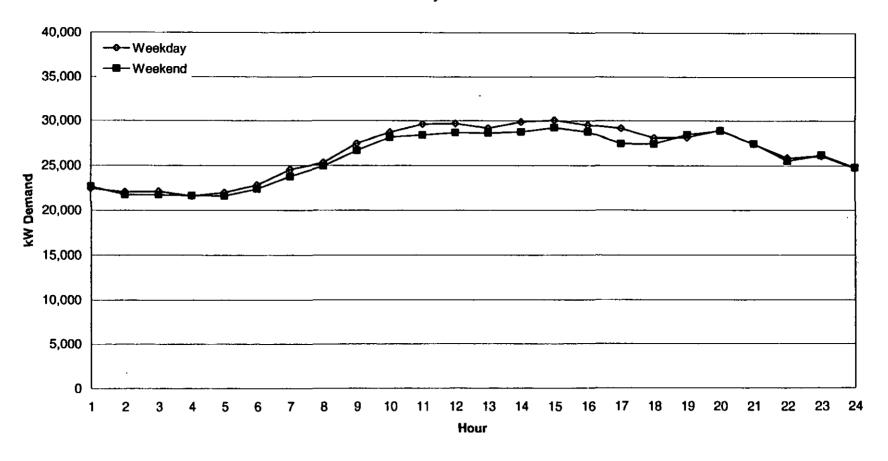


Exhibit 9.1 g

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

February 2002

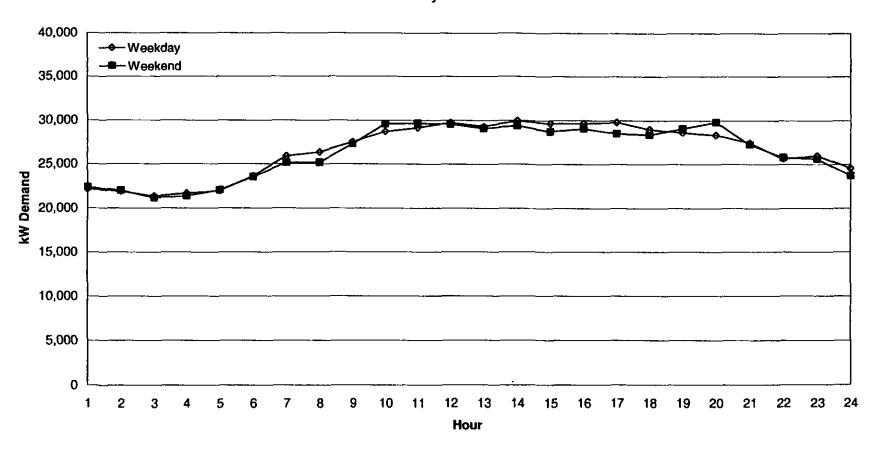


Exhibit 9.1 h

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

March 2002

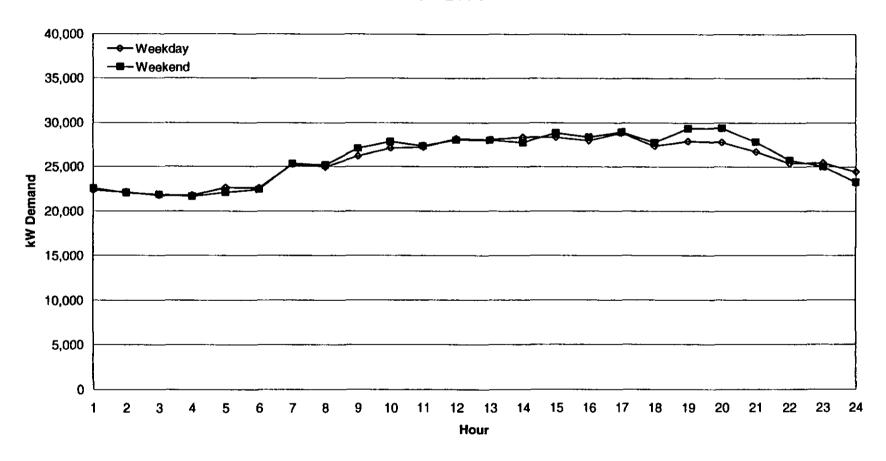


Exhibit 9.1 i

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

April 2002

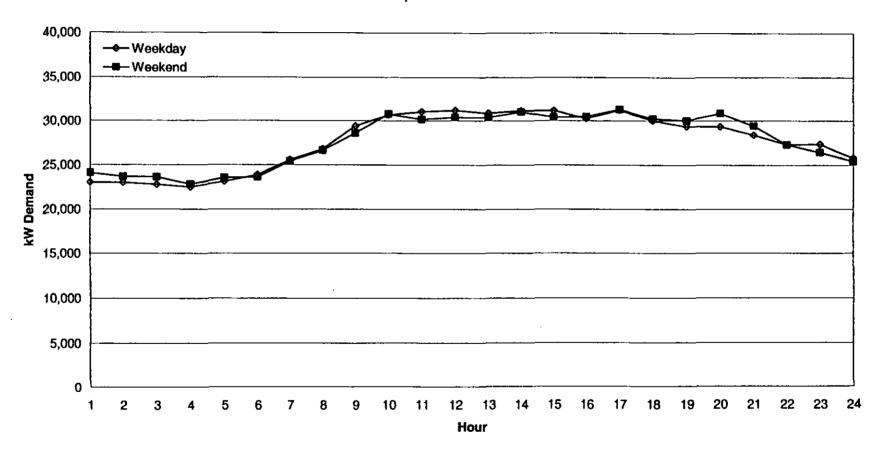


Exhibit 9.1 j

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

May 2002

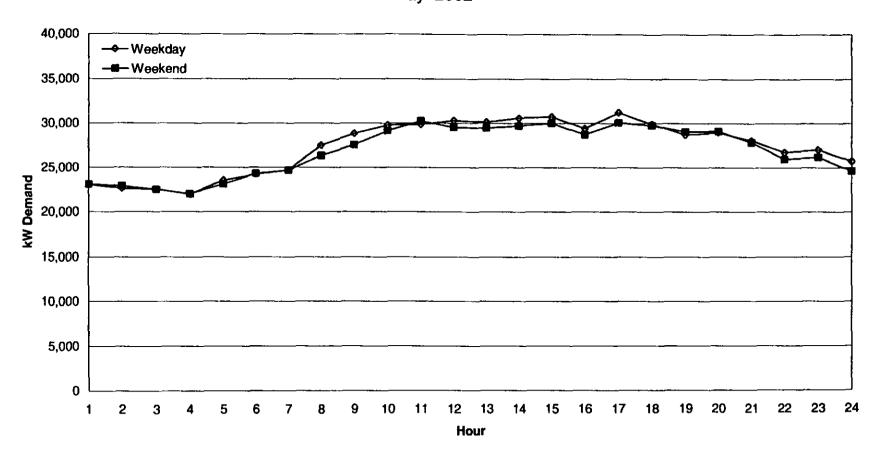


Exhibit 9.1 k

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

June 2002

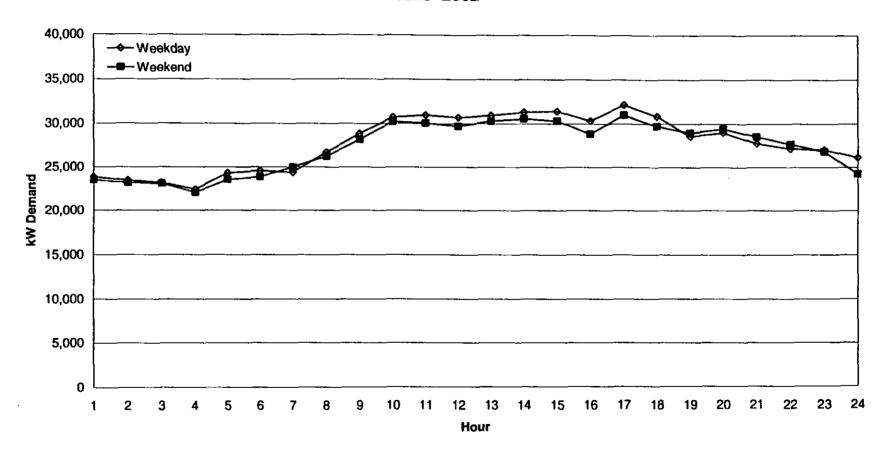
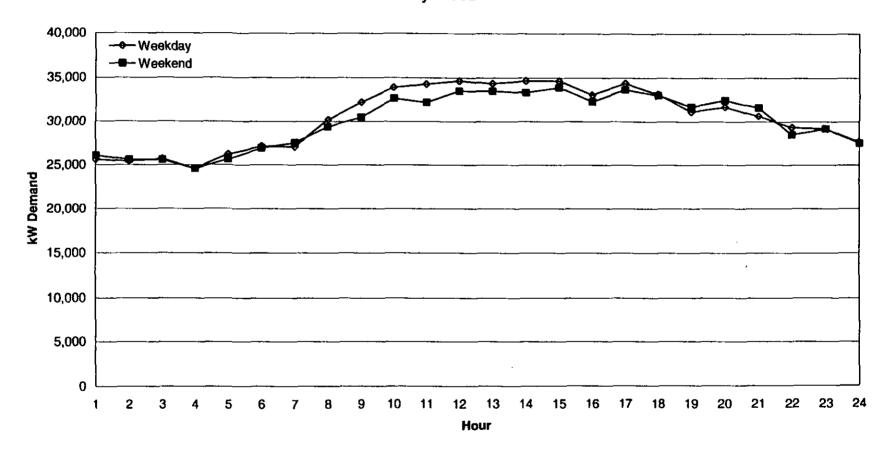


Exhibit 9.1 I

AVERAGE WEEKDAY vs AVERAGE WEEKEND, Normalized at the Net-to-System Level

Schedule P: Large Power Service

July 2002



10. SCHEDULE F: STREET LIGHT SERVICE

Street light service accounts for the second-smallest amount of sales on Hawai'i. During the study period, 103 customers accounted for less than 1% of sales, with an average consumption of 343 MWh per month, or 3,346 kWh per customer.

The street light load profile was constructed using recorded billing data and the monthly average times for sunrise and sunset for Hilo. The times of sunrise and sunset for each day of the year were obtained from the United States Naval Observatory. The averages for each month are shown in Table 10.1. The allocation of monthly kWh to hours of the day is shown in Table 10.2. The same photoelectric lighting control specifications that were used in the Maui Electric Company's 1983 Load Research Study were used in determining the on and off times for the street lights.

The Schedule F load data revealed these patterns and characteristics:

- 1. From August 2001 through July 2002, public street lighting customers' average monthly kWh ranged from a low of 3,011 in February 2002 to a high of 4,091 in May 2002. The average consumption was 3,346 kWh per month.
- 2. In constructing the class load it was assumed that the entire class had identical load profiles; therefore, the class peak demand per customer and the non-coincident demand per customer were equal. The hourly load data for the class peak day of each month is provided in Table 10.4.
- 3. Shown in Table 10.6, Schedule F's contribution to the net-to-system peak ranged from zero in May 2002 to 1.2 MW in March 2002. In May 2002, the system peak occurred about one-half hour before the streetlights came on. Schedule F never contributes to the day peak.
- 4. Between August 2001 and July 2002, Schedule F's monthly load factor ranged from 41% to 51%, with an average monthly load factor of 46%.
- 5. Table 10.7 shows that 81% of total consumption occurred during the off-peak period, 13% occurred during the priority peak period, and 6% occurred during the on-peak period.
- 6. Hourly load data at the net-to-system and the sales levels for the average weekday and weekend of each month are presented in Tables 10.8 through 10.11. The net-to-system weekend and weekday loads are graphed in Exhibits 10.1a through 10.11. Manually generating the load profile resulted in all the days of a given month having nearly identical load shapes.

Table 10.1
ESTIMATED STREET LIGHTING HOURS

	Mean Sunrise and Sunset Times ¹		Adjustment for Darkness	_	t Turn Off On Times	Fraction Streetligh During the Fi 15 Min Period	ts Are On rst and Last	Average Number of Lighting Hours	
<u>Month</u>	Sunrise	Sunset	Level (min) ²	Turn Off	Turn On	First	Last	Hours per Day	
Aug-01	6:01	18:47	0:25	5:36	19:12	5/15	0	10:25	
Sep-01	6:08	18:22	0:25	5:43	18:47	11/15	0	10:57	
Oct-01	6:16	17:57	0:25	5:51	18:22	1/15	0	11:29	
Nov-01	6:43	17:42	0:25	6:18	18:07	5/15	0	12:11	
Dec-01	6:47	17:45	0:25	6:22	18:10	4/15	0	12:12	
Jan-02	6:57	18:03	0:25	6:32	18:28	11/15	0	12:04	
Feb-02	6:49	18:20	0:25	6:24	18:45	1/15	0	11:39	
Mar-02	6:28	18:30	0:25	6:03	18:55	5/15	0	11:07	
Apr-02	6:02	18:39	0:25	5:37	19:04	4/15	0	10:34	
May-02	5:45	18:49	0:25	5:20	19:14	3/15	0	10:07	
Jun-02	5:42	19:00	0:25	5:17	19:25	13/15	0	9:53	
Jul-02	5:51	19:01	0:25	5:26	19:26	8/15	0	10:01	

¹ Arithmetic average of daily sunrise/sunset times for Hilo, derived from daily times provided by the United States Naval Observatory at http://aa.usno.navy.mll/data/docs/RS_OneYear.html

Subtracted from the time of sunrise, and added to the time of sunset. Based on the Ripley Model 7051-250V photoelectric lighting control specification used for analysis in the Maui Electric Light Company, Ltd.'s 1983 Load Research Study.

Table 10.2 SIMULATED LOAD DATA FOR STREET LIGHTING

					15-Minute		
		Full	Fractional	Days per	Intervals		kW
<u>Month</u>	<u>kWh</u>	<u>Hours On</u>	<u> Hours On</u>	Month	per Month	Intervals On	per Hour
Aug-01	349,060	10.	0.40	31	2,976	1,290	1,083
Sep-01	338,372	10	0.93	30	2,880	1,312	1,032
Oct-01	330,285	11	0.48	31	2,976	1,424	928
Nov-01	343,450	12	0.18	30	2,880	1,462	940
Dec-01	364,011	12	0.20	31	2,976	1,513	962
Jan-02	343,673	12	0.07	31	2,976	1,496	919
Feb-02	322,202	11	0.65	28	2,688	1,305	988
Mar-02	363,012	11	0.12	31	2,976	1,378	1,053
Apr-02	320,464	10	0.57	30	2,880	1,268	1,011
May-02	355,888	10	0.10	31	2,976	1,252	1,137
Jun-02	354,094	9	0.87	30	2,880	1,184	1,196
Jul-02	332,212	9	0.98	31	2,976	1,238	1,073
Total kWh	4,116,723						
Total hours	919						
kW per hour	4.482	•					

Table 10.3 SUMMARY OF MONTHLY LOAD STATISTICS AT THE SALES LEVEL

			% (dWh	_	kw c	emand at Tir	ne of	Maximum		Load Factor Based on	Load Factor Based on	-	idence F at Time of
Month	Sample Size	kWh_	On Peak	Off Peak	Class Peak Date - Hour	CLASS PEAK	SYS PM PEAK	TEM AM PEAK	Non-coincident Demand	Diversity Factor	Coincident Demand	Non-coincident Demand	Class Peak	System Peak
Α	В	Ċ	D	E	F	G	н	t	J	K = (J/G)	Ŀ	M	N=(G\1)	O=(H/J)
Aug-01	109	3,293	17%	83%		10	10	0	10	100%	43%	43%	100%	100%
Sep-01	107	3,192	20%	80%		10	10	0	10	100%	46%	46%	100%	100%
Oct-01	97	3,087	23%	77%	CONSTRUCTED	9	9	0	9	100%	48%	48%	100%	100%
Nov-01	97	3,180	24%	76%	LOAD	9	9	0	9	100%	51%	51%	100%	100%
Dec-01	87	3,370	23%	77%		9	9	0	9	100%	51%	51%	100%	100%
Jan-02	101	3,153	21%	79%	EACH DAY	8	8	0	8	100%	50%	50%	100%	100%
Feb-02	103	3,011	19%	81%	IS AN	9	9	0	9	100%	48%	48%	100%	100%
Mar-02	106	3,742	19%	81%	AVERAGE	11	11	0	11	100%	46%	46%	100%	100%
Apr-02	106	3,304	18%	82%	DAY	10	10	0	10	100%	44%	44%	100%	100%
May-02	107	4,091	17%	83%		13	0	0	13	100%	42%	42%	100%	0%
Jun-02	108	3,506	16%	84%		12	12	0	12	100%	41%	41%	100%	100%
Jul-02	108	3,225	16%	84%		10	10	O	10	100%	42%	42%	100%	100%
Average	103	3,346	19%	81%		10	9	0	10	100%	46%	46%	100%	92%

Notes:

- 1) kW Demand is 60-minute integrated demand.
- 2) Customers = average number of customers on the system from August 1, 2001 to July 31, 2002 (not a sample).

Control of the Contro

- 3) The August peak occurred one minute after the estimated time the street lights came on during the month, and the September peak occurred at the same minute.

 For consistency, it is assumed here that streetlights were on at the time of every monthly system peak.
- Maximum non-coincident kW demand = 0 individual maximum demands.
- 5) Diversity factor = ratio of the weighted sum of the maximum demand of each member of the class to the maximum coincident demand of the entire class.
- 6) Load factor = ratio (as a %) of kWh / (peak demand x number of hours).
- 7) Coincidence factor = ratio (as a %) of the maximum demand of the class to the weighted sum of the maximum demand of each member of the class.

Table 10.4
HOURLY LOAD (kW) DATA FOR THE DAYS OF THE CLASS PEAKS

Schedule F: Street Light Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
2	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
3	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
4	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
5	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
6	650	739	789	940	962	919	988	1,053	632	379	339	456
7	0	0	0	282	353	490	395	35	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	G	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	224	588	830	802	490	247	88	0	0	0	0
20	866	1,032	928	940	962	919	988	1,053	952	871	698	599
21	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
22	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
23	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
24	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,198	1,073
Average	469	470	444	477	489	462	479	488	445	478	492	447

Table 10.5
HOURLY LOAD (kW) DATA PER CUSTOMER FOR THE DAYS OF THE CLASS PEAKS

Schedule F: Street Light Service 60-Minute Integrated kW Demand at the Sales Level

<u>Hour</u>	Aug-01	<u>Sep-01</u>	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	Jul-02
1	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
2	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
3	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
4	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
5	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
6	6.1	7.0	7.4	8.7	8.9	8.4	9.2	10.9	6.5	4.4	3.4	4.4
7	0.0	0.0	0.0	2.6	3.3	4.5	3.7	0.4	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	0.0	2.1	5.5	7.7	7.4	4.5	2.3	0.9	0.0	0.0	0.0	0.0
20	8.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	9.8	10.0	6.9	5.8
21	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
22	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
23	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
24	10.2	9.7	8.7	8.7	8.9	8.4	9.2	10.9	10.4	13.1	11.8	10.4
Average	4.43	4.43	4.15	4.42	4.53	4.24	4.48	5.03	4.59	5.50	4.87	4.34

Table 10.6
CLASS CONTRIBUTIONS TO THE SYSTEM AND DAY PEAKS

Schedule F: Street Light Service 60-Minute Integrated kW Demand Normalized at the Net-to-System Level

	SYSTEM	VENING PEAK	SYSTEM DAY PEAK				
Month	CLASS kW	% OF SYSTEM	CLASS kW	% OF SYSTEM			
Aug-01	912	1%	0	0%			
Sep-01	253	0%	0	0%			
Oct-01	681	0%	0	0%			
Nov-01	914	1%	0	0%			
Dec-01	895	1%	0	0%			
Jan-02	526	0%	0	0%			
Feb-02	1,093	1%	0	0%			
Mar-02	1,174	1%	0	0%			
Apr-02	987	1%	0	0%			
May-02	0	0%	0	0%			
Jun-02	824	1%	0	0%			
Jul-02	637	0%	0	0%			
Average	741	0%	0	0%			

Note: The 12-month instantaneous net-to-system peak of 174.1 MW occurred on December 17, 2001 @ 18:32.

Table 10.7
CLASS kWh LOAD BY TIME-OF-USE AT SALES LEVEL

	kWh	-Use		
Month	Priority Peak	On-peak	Off-peak	Total
Aug-01	42,875	17,540	288,646	349,060
Sep-01	43,448	25,154	269,769	338,372
Oct-01	53,751	21,989	254,545	330,285
Nov-01	54,188	27,094	262,168	343,450
Dec-01	54,541	29,997	279,473	364,011
Jan-02	48,877	23,275	271,521	343,673
Feb-02	42,226	20,002	259,974	322,202
Mar-02	41,696	26,334	294,981	363,012
Apr-02	43,183	15,703	261,577	320,464
May-02	44,178	18,073	293,637	355,888
Jun-02	35,988	20,835	297,271	354,094
Jul-02	36,801	15,055	280,356	332,212
Total	292,950	139,277	1,959,318	2,391,545
Percent	12%	6%	82%	100%

Percent l	Wh Load by Tim	e-o1-Use			
Priority Peak	On-peak	Off-peak	Total		
12%	5%	83%	100%		
13%	7%	80%	100%		
16%	7%	77%	100%		
16%	8%	7 6 %	100%		
15%	8%	77%	100%		
14%	7%	79%	100%		
13%	6%	81%	100%		
11%	7%	81%	100%		
13%	5%	82%	100%		
12%	5%	83%	100%		
10%	6%	84%	100%		
11%	5%	84%	100%		

Time-of-Use Definitions:

Priority Peak: 5 pm - 9 pm, Monday through Friday

On-Peak: 7 am - 5 pm, Monday through Friday

7 am - 9 pm, Saturday and Sunday

Off-Peak: 9 pm - 7 am, Daily

Table 10.8

AVERAGE WEEKDAY - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	Jan-02	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	1,234	1,188	1,083	1,097	1,112	1,032	1,109	1,220	1,133	1,288	1,377	1,202
2	1,233	1,177	1,070	1,107	1,125	1,044	1,127	1,243	1,166	1,301	1,399	1,214
3	1,234	1,206	1,101	1,107	1,128	1,063	1,109	1,238	1,163	1,303	1,409	1,241
4	1,214	1,180	1,079	1,081	1,085	1,036	1,116	1,228	1,139	1,259	1,346	1,175
5	1,189	1,147	1,050	1,039	1,062	1,004	1,079	1,214	1,124	1,303	1,398	1,216
6	677	764	825	1,002	998	962	1,063	1,114	668	414	373	501
7	0	0	0	300	378	512	430	39	0	0	0	0
8	0	0	0	0	0	0	0	0	O	0	0	Q
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	a	0	Q	0
12	0	0	0	D	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	233	632	878	851	514	262	93	0	0	0	0
20	922	1,098	1,012	1,026	1,067	1,015	1,054	1,115	1,002	924	744	629
21	1,160	1,138	1,035	1,056	1,057	1,010	1,065	1,125	1,080	1,232	1,278	1,136
22	1,167	1,118	1,023	1,036	1,041	980	1,026	1,110	1,065	1,209	1,277	1,108
23	1,228	1,174	1,069	1,085	1,120	1,043	1,115	1,184	1,139	1,304	1,358	1,173
24	1,245	1,206	1,084	1,110	1,138	1,061	1,137	1,220	1,154	1,329	1,411	1,210
Average	521	526	503	539	548	511	529	548	493	536	557	492

Table 10.9

AVERAGE WEEKDAY - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	Aug-01	Sep-01	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	May-02	<u>Jun-02</u>	<u>Jul-02</u>
1	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
2	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
3	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
4	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
5	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
6	650	739	789	940	962	919	988	1,053	632	379	339	456
7	0	0	0	282	353	490	395	35	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	O	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	O	0	0	0	0	0	Q	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	σ	0	0	0	0	0	0	0	0	0	0	O
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	224	588	830	802	490	247	88	0	0	0	0
20	866	1,032	928	940	962	919	988	1,053	952	871	698	599
21	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
22	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
23	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
24	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
Average	469	470	444	477	489	462	479	488	445	478	492	447

Table 10.10

AVERAGE WEEKEND - NORMALIZED AT THE NET-TO-SYSTEM LEVEL

Hour	<u>Aug-01</u>	<u> Sep-01</u>	Oct-01	Nov-01	Dec-01	<u>Jan-02</u>	Feb-02	Mar-02	Apr-02	<u>May-02</u>	<u>Jun-02</u>	<u>Jul-02</u>
1	1,232	1,190	1,099	1,093	1,117	1,039	1,121	1,215	1,158	1,285 •	1,371	1,214
2	1,215	1,182	1,071	1,096	1,123	1,037	1,135	1,236	1,184	1,312	1,395	1,218
3	1,221	1,216	1,098	1,119	1,111	1,049	1,108	1,239	1,196	1,303	1,402	1,243
4	1,205	1,192	1,091	1,063	1,086	1,044	1,107	1,228	1,158	1,267	1,334	1,185
5	1,157	1,149	1,061	1,070	1,092	1,000	1,081	1,188	1,142	1,274	1,358	1,193
6	703	816	871	999	1,022	960	1,068	1,117	669	419	368	508
7	0	0	0	304	377	510	425	40	0	0	0	0
6	0	0	0	0	σ	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	Ō	Ō	0	0	Ō	0	Đ	D	Ō
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	244	648	896	894	526	266	98	0	0	0	0
20	967	1,143	1,051	1,066	1,121	1,024	1,100	1,182	1,053	937	758	847
21	1,248	1,164	1,036	1,081	1,111	1,017	1,046	1,186	1,115	1,216	1,309	1,173
22	1,197	1,172	1,055	1,047	1,095	989	1,046	1,158	1,085	1,195	1,325	1,108
23	1,209	1,193	1,069	1,083	1,122	1,074	1,117	1,202	1,132	1,286	1,386	1,202
24	1,230	1,193	1,089	1,105	1,131	1,086	1,114	1,196	1,178	1,290	1,355	1,237
Average	524	536	510	543	558	515	531	554	503	533	557	497

Table 10.11

AVERAGE WEEKEND - NORMALIZED AT THE SALES LEVEL

<u>Hour</u>	<u> Aug-01</u>	Sep-01	Oct-01	Nov-01	Dec-01	<u> Jan-02</u>	Feb-02	Mar-02	AD7-02	May-02	<u> </u>	<u>Jul-02</u>
1	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
2	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
3	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
4	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
5	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
6	650	739	789	940	962	919	988	1,053	632	379	339	456
7	0	0	0	282	353	490	395	35	0	0	0	0
8	0	0	0	0	0	0	0	Q	Q	O	O	0
9	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	Q	0	Q	Q	G	Q	Q	Q
13	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0
19	0	224	588	830	802	490	247	88	0	0	0	0
20	866	1,032	928	940	962	919	988	1,053	952	871	698	599
21	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
22	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
23	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
24	1,083	1,032	928	940	962	919	988	1,053	1,011	1,137	1,196	1,073
Average	469	470	444	477	489	462	479	488	445	478	492	447

Exhibit 10.1 a

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

August 2001

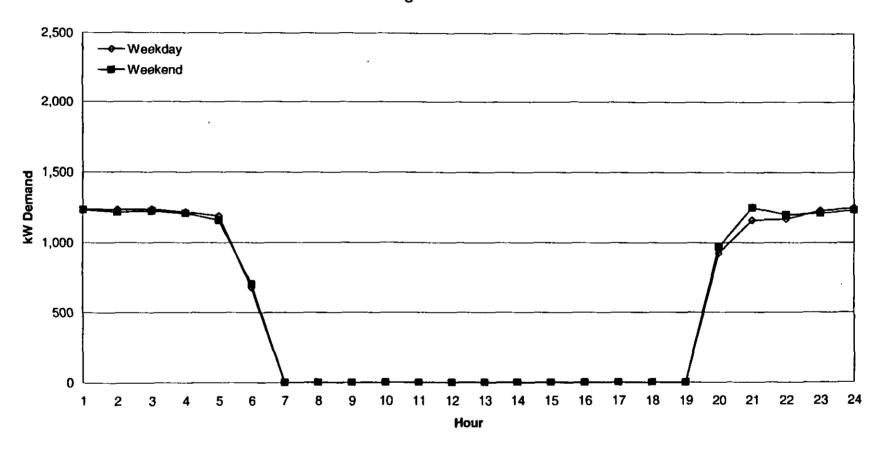


Exhibit 10.1 b

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

September 2001

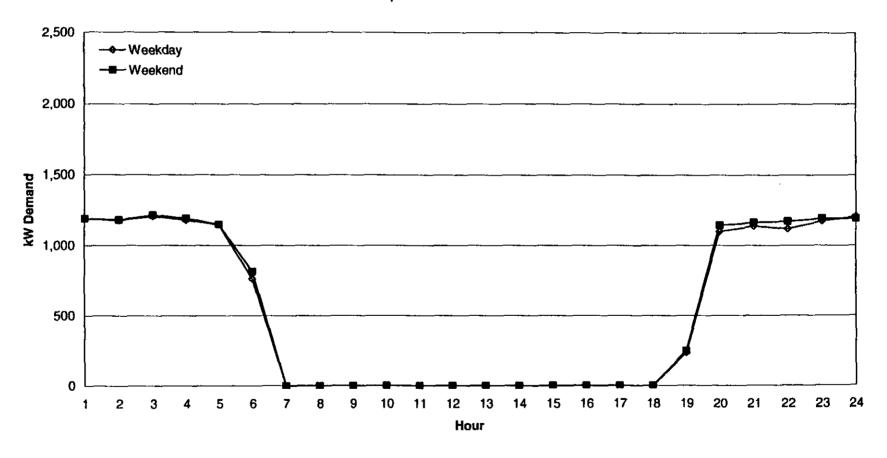


Exhibit 10.1 c

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

October 2001

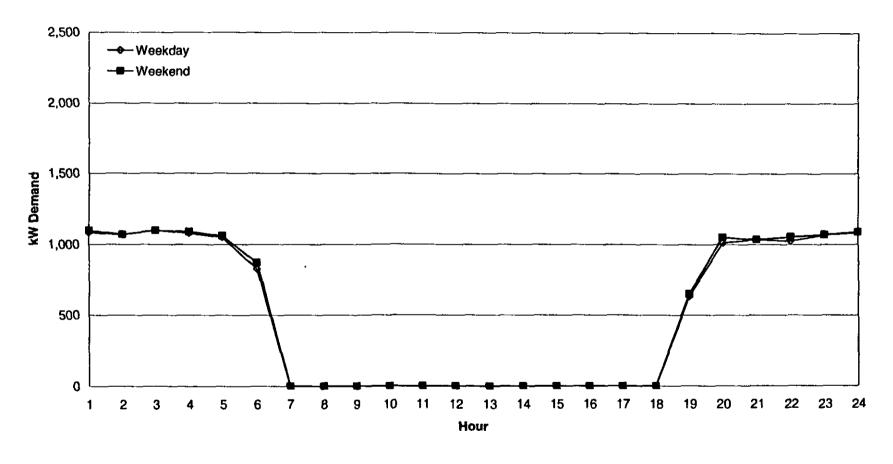


Exhibit 10.1 d

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

November 2001

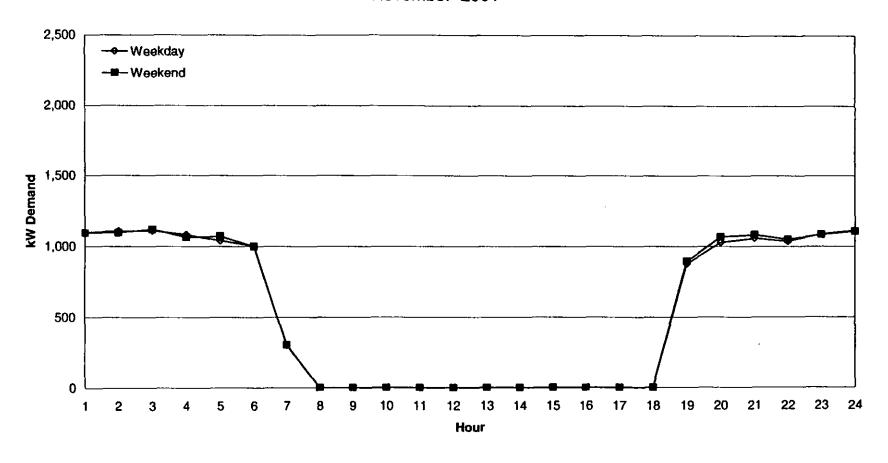


Exhibit 10.1 e

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

December 2001

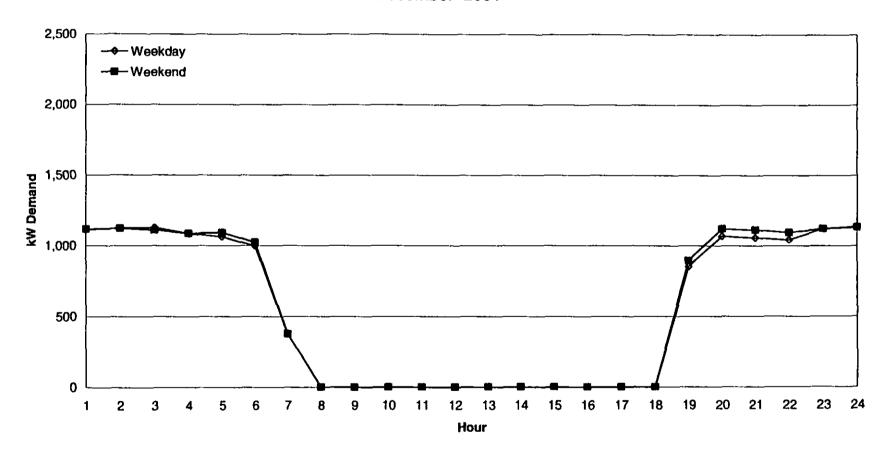


Exhibit 10.1 f

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

January 2002

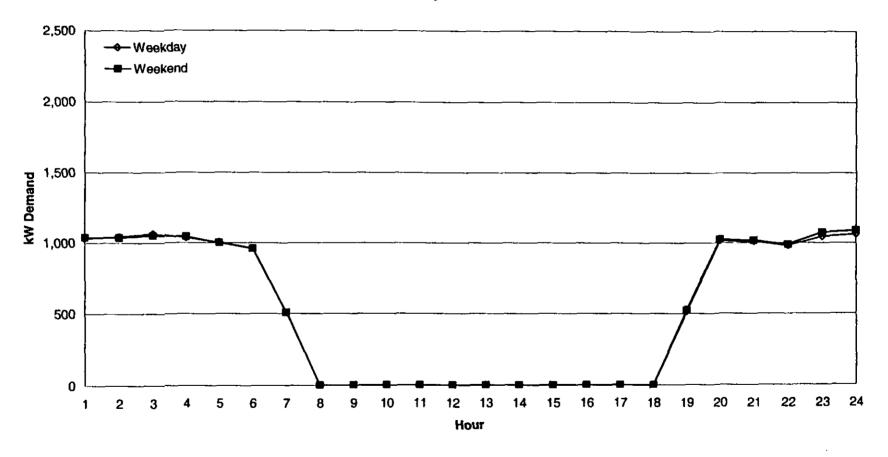


Exhibit 10.1 g

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

February 2002

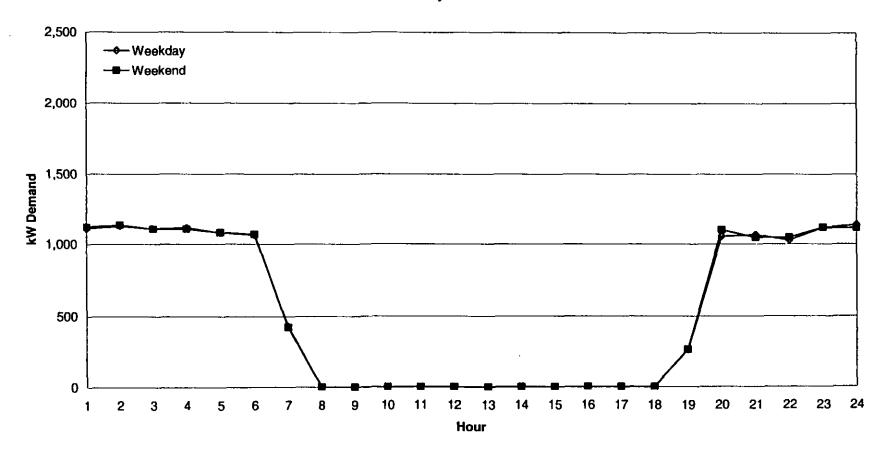


Exhibit 10.1 h

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

March 2002

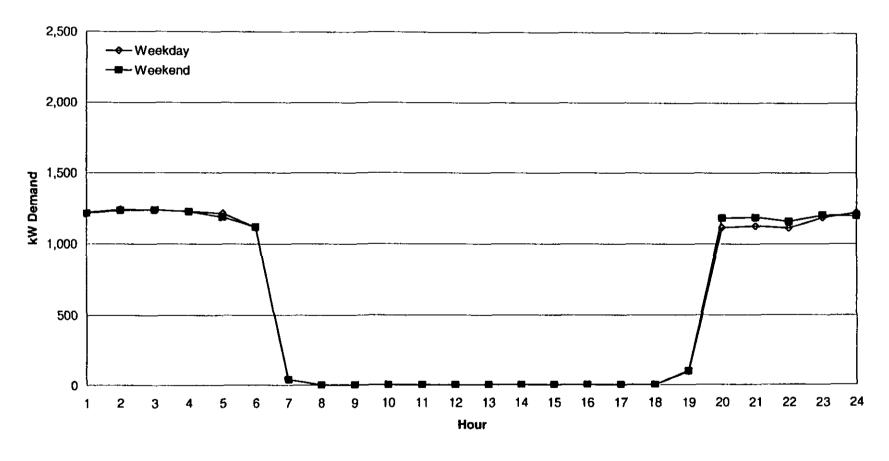


Exhibit 10.1 i

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

April 2002

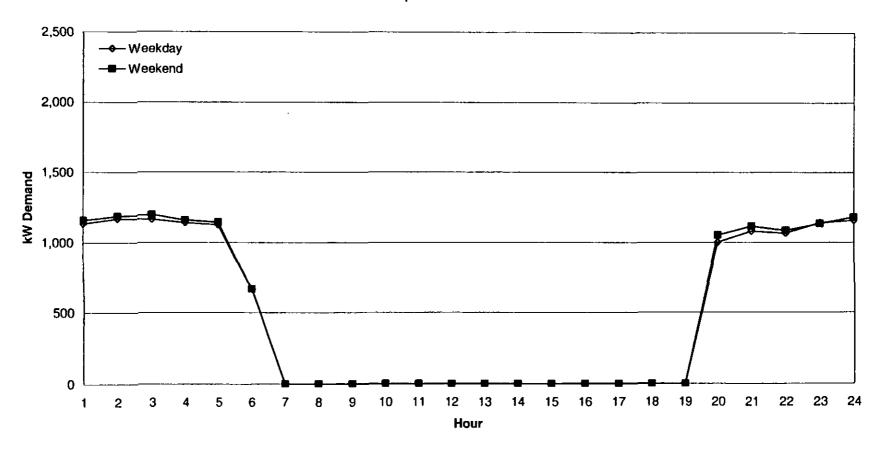


Exhibit 10.1 j

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

May 2002

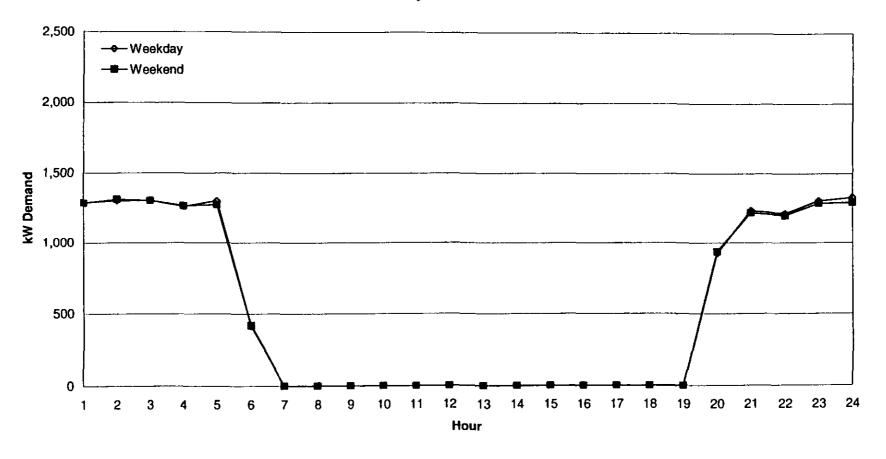


Exhibit 10.1 k

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

June 2002

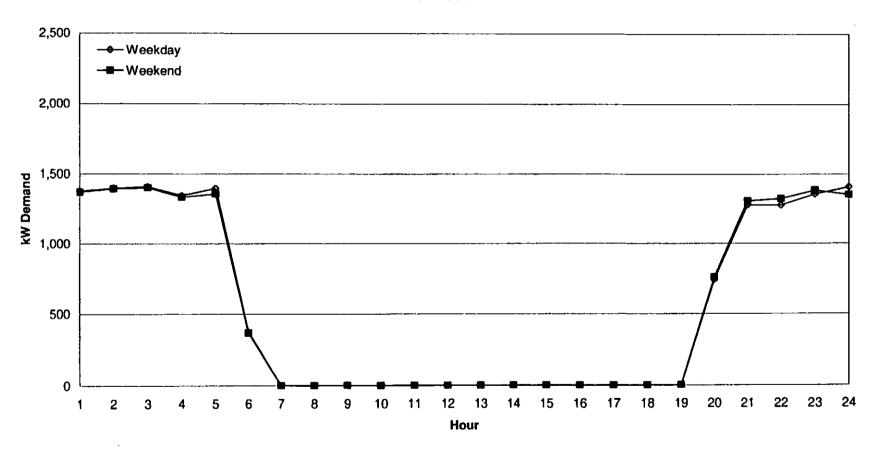


Exhibit 10.1 I

AVERAGE WEEKDAY vs. AVERAGE WEEKEND - Normalized at the Net-to-System Level

Schedule F: Street Light Service

July 2002

